TEXIO
Test and Measurement Solutions

INSTRUCTION MANUAL

AC/DC POWER SOURCE

ASR-RK SERIES

ASR902-351RK
ASR123-351RK
ASR133-351RK
ASR183-351RK
ASR243-351RK

This instruction manual is a supplementary manual for the ASR-RK series. For detailed operation information, please refer to the instruction manual for the ASR-4.5k / 6k series.

■ About Brands and Trademarks

“TEXIO” is the product brand name of our industrial electronic devices.

All company names and product names mentioned in this manual are the trademark or the registered trademark of each company or group in each country and region.

■ About the Instruction Manual

The latest version of the instruction manual is posted on our website (https://www.texio.co.jp/)

In order to be environmentally friendly and reduce waste, we are gradually discontinuing the use of paper or CD manuals that come with our products.

Even if there is a description in the instruction manual that the product is included, it may not be included.

■ About firmware version

This user manual is required firmware version 1.03 or higher.

Table of Contents

USING THE PRODUCT SAFELY

■ Preface

To use the product safely, read instruction manual to the end. Before using this product, understand how to correctly use it. If you read the manuals but you do not understand how to use it, ask us or your local dealer. After you read the manuals, save it so that you can read it anytime as required.

■ Pictorial indication

The manuals and product show the warning and caution items required to safely use the product. The following pictorial indication is provided.

Pictorial indication	
	Some part of this product or the manuals may show this pictorial indication. In this case, if the product is incorrectly used in that part, a serious danger may be brought about on the user's body or the product. To use the part with this pictorial indication, be sure to refer to the manuals.
	If you use the product, ignoring this indication, you may get killed or seriously injured. This indication shows that the warning item to avoid the danger is provided.
	If you incorrectly use the product, ignoring this indication, you may get slightly injured or the product may be damaged. This indication shows that the caution item to avoid the danger is provided.

Please be informed that we are not responsible for any damages to the user or to the third person, arising from malfunctions or other failures due to wrong use of the product or incorrect operation, except such responsibility for damages as required by law.

USING THE PRODUCT SAFELY

■ Do not remove the product's covers and panels

Never remove the product's covers and panels for any purpose.

Otherwise, the user's electric shock or fire may be incurred.

■ Warning on using the product

Warning items given below are to avoid danger to user's body and life and avoid the damage or deterioration of the product. Use the product, observing the following warning and caution items.

■ Warning items on power supply

● Power supply voltage

The rated power supply voltage of the product is single phase or three phase, and the phase voltage is AC200V to AC240V.

● Power cord

(IMPORTANT) This product does not include a power cord.Please prepare a power cord that matches the power rating.

● Protective fuse

If an input protective fuse is blown, the product does not operate. For a product with external fuse holder, the fuse may be replaced. As for how to replace the fuse, refer to the corresponding chapter in the instruction manual. If no fuse replacement procedures are indicated, the user is not permitted to replace it. In such case, keep the case closed and consult us or your local dealer. If the fuse is incorrectly replaced, a fire may occur.

USING THE PRODUCT SAFELY

■ Warning item on Grounding

If the product has the GND terminal on the front or rear panel surface, be sure to ground the product to safely use it.

■ Warnings on Installation environment

● Operating temperature and humidity

Use the product within the operating temperature indicated in the “rating” temperature column. If the product is used with the vents of the product blocked or in high ambient temperatures, a fire may occur. Use the product within the operating humidity indicated in the “rating” humidity column. Watch out for condensation by a sharp humidity change such as transfer to a room with a different humidity. Also, do not operate the product with wet hands. Otherwise, an electric shock or fire may occur.

● Use in gas

Use in and around a place where an inflammable or explosive gas or steam is generated or stored may result in an explosion and fire. Do not operate the product in such an environment. Also, use in and around a place where a corrosive gas is generated or spreading causes a serious damage to the product. Do not operate the product in such an environment.

● Installation place

Do not insert metal and inflammable materials into the product from its vent and spill water on it. Otherwise, electric shock or fire may occur.

■ Do not let foreign matter in

Do not insert metal and inflammable materials into the product from its vent and spill water on it. Otherwise, electric shock or fire may occur.

■ Warning item on abnormality while in use

If smoke or fire is generated from the product while in use, stop using the product, turn off the switch, and remove the power cord plug from the outlet. After confirming that no other devices catch fire, ask us or your local dealer.

USING THE PRODUCT SAFELY

■ Input / Output terminals

Maximum input to terminal is specified to prevent the product from being damaged. Do not supply input, exceeding the specifications that are indicated in the "Rating" column in the instruction manual of the product. Also, do not supply power to the output terminals from the outside. Otherwise, a product failure is caused.

■ Calibration

Although the performance and specifications of the product are checked under strict quality control during shipment from the factory, they may be deviated more or less by deterioration of parts due to their aging or others.

It is recommended to periodically calibrate the product so that it is used with its performance and specifications stable. For consultation about the product calibration, ask us or your local dealer.

■ Daily Maintenance

When you clean off the dirt of the product covers, panels, and knobs, avoid solvents such as thinner and benzene. Otherwise, the paint may peel off or resin surface may be affected. To wipe off the covers, panels, and knobs, use a soft cloth with neutral detergent in it.

During cleaning, be careful that water, detergents, or other foreign matters do not get into the product.

If a liquid or metal gets into the product, an electric shock and fire are caused.

During cleaning, remove the power cord plug from the outlet.

Use the product correctly and safely, observing the above warning and caution items. Because the instruction manual indicates caution items even in individual items, observe those caution items to correctly use the product.

If you have questions or comments about the manuals, ask us or E-Mail us.

1. GETTING STARTED

This chapter describes the ASR-RK series power supply in a nutshell, including its main features and front / rear panel introduction.

This manual is a supplementary manual for the ASR-RK series.

For detailed operation information, please refer to the ASR-4.5k / 6k instruction manual.

ASR902-351RK
ASR123-351RK

ASR133-351RK
ASR183-351RK

ASR243-351RK

1-1. ASR Series Overview

1-1-1. Series lineup

The ASR series consists of 5 models, differing in capacity. Note that throughout the user manual, the term “ASR-RK” refers to any of the models, unless stated otherwise.

1P Output Condition

Model Name	Power Rating	Max. Output Current	Max. Output Voltage
ASR902-351RK	9000VA	90 / 45A	350Vrms / 500Vdc
ASR123-351RK	12000VA	120 / 60A	350Vrms / 500Vdc
ASR133-351RK	13500VA	135 / 67.5A	350Vrms / 500Vdc
ASR183-351RK	18000VA	180 / 90A	350Vrms / 500Vdc
ASR243-351RK	24000VA	240 / 120A	350Vrms / 500Vdc

1P3W Output Condition

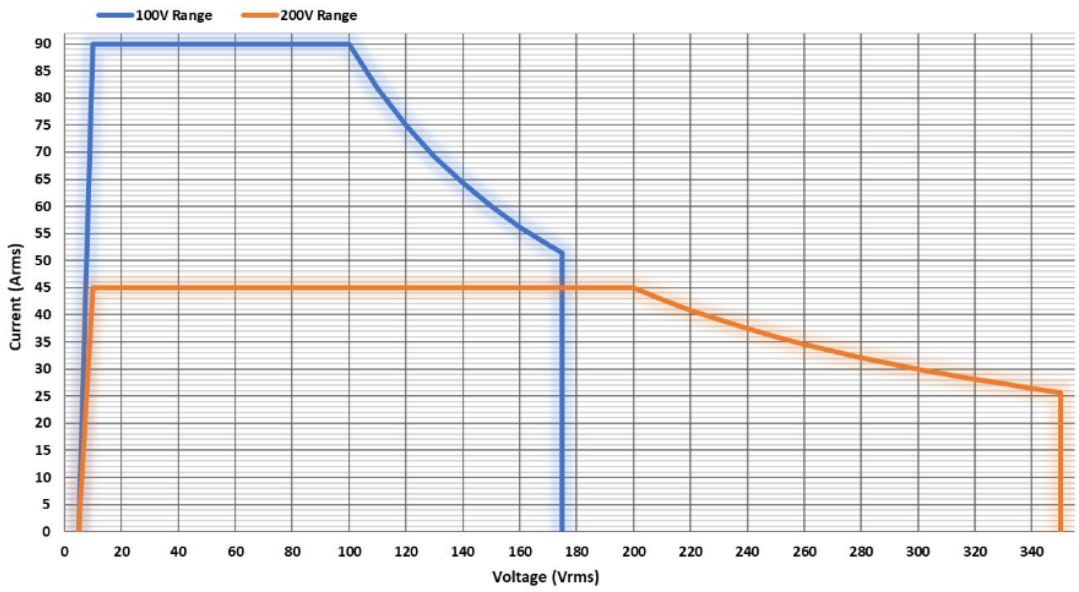
Model Name	Power Rating	Max. Output Current	Max. Output Voltage
ASR902-351RK	6000VA	30 / 15A	700Vrms / 1000Vdc
ASR123-351RK	8000VA	40 / 20A	700Vrms / 1000Vdc
ASR133-351RK	9000VA	45 / 22.5A	700Vrms / 1000Vdc
ASR183-351RK	12000VA	60 / 30A	700Vrms / 1000Vdc
ASR243-351RK	16000VA	80 / 40A	700Vrms / 1000Vdc

3P Output Condition (Pre phase)

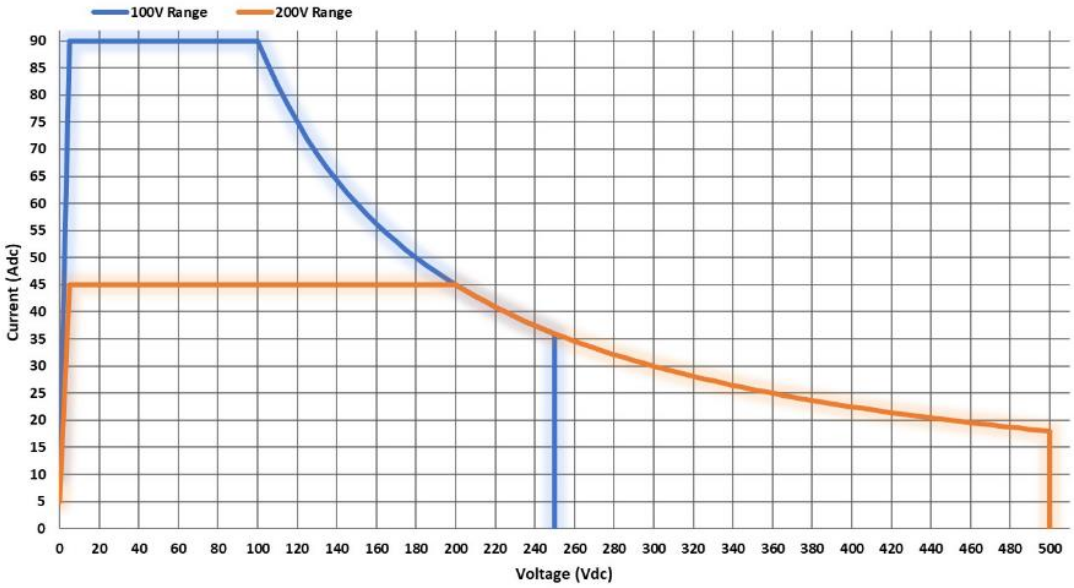
Model Name	Power Rating	Max. Output Current	Max. Output Voltage
ASR902-351RK	3000VA	30 / 15A	350Vrms / 500Vdc
ASR123-351RK	4000VA	40 / 20A	350Vrms / 500Vdc
ASR133-351RK	4500VA	45 / 22.5A	350Vrms / 500Vdc
ASR183-351RK	6000VA	60 / 30A	350Vrms / 500Vdc
ASR243-351RK	8000VA	80 / 40A	350Vrms / 500Vdc

1-1-2. Operating Area

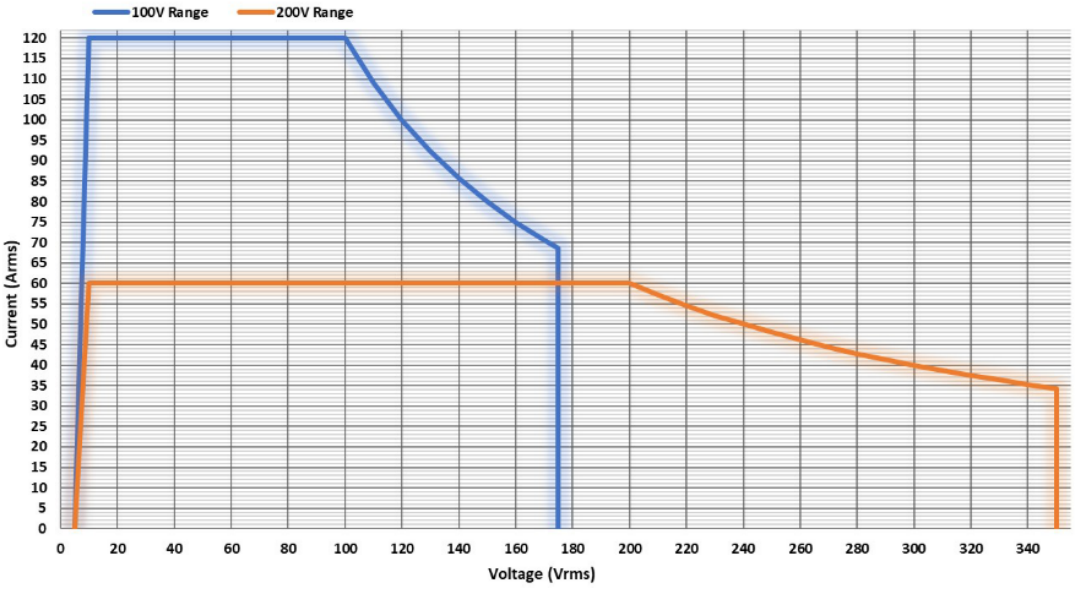
ASR902-351RK AC Mode Operating



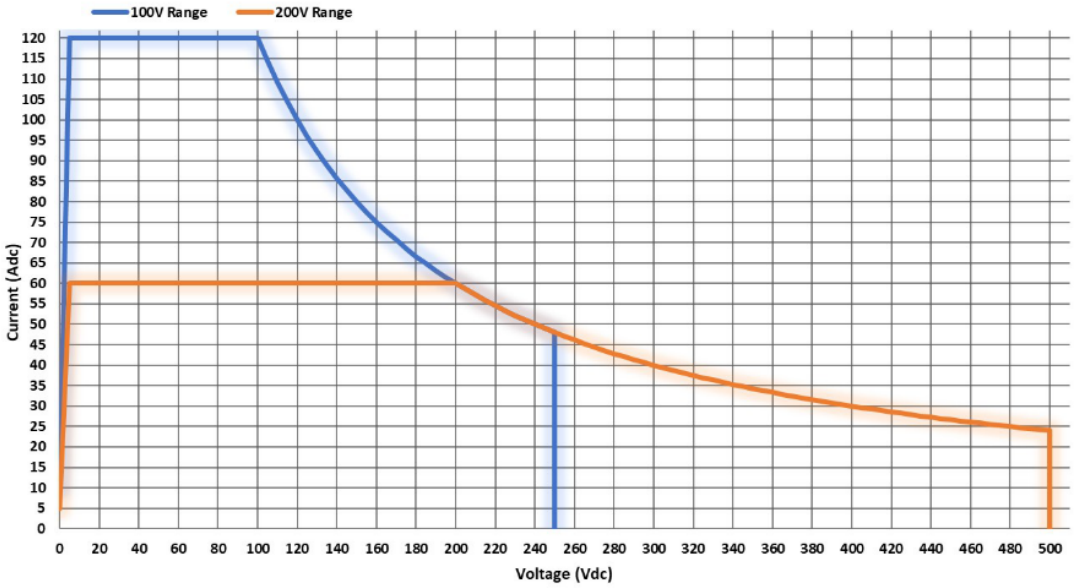
ASR902-351RK DC Mode Operating Area



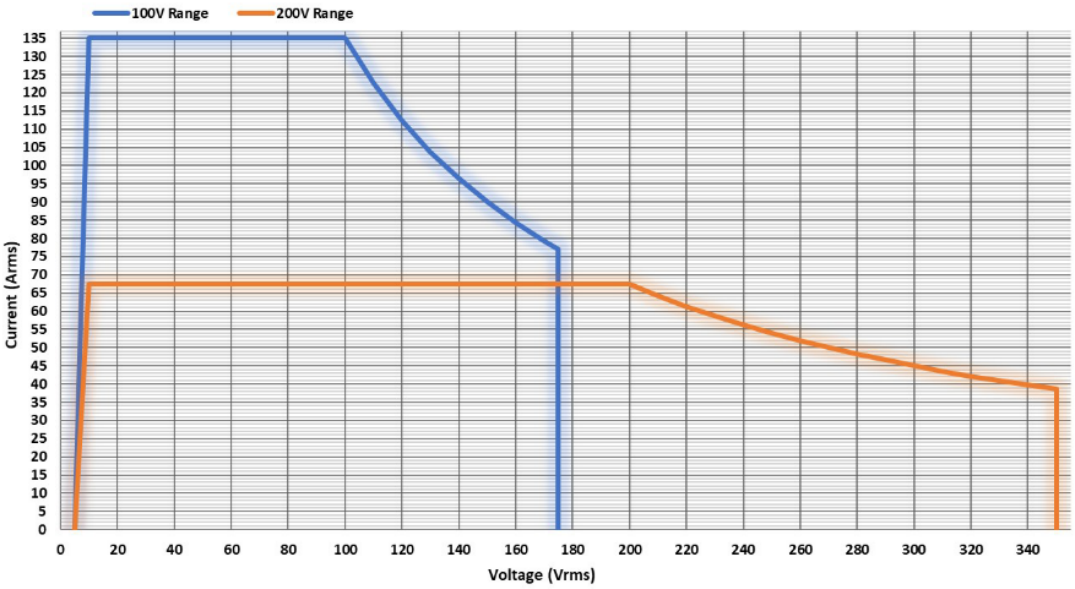
ASR123-351RK AC Mode Operating Area



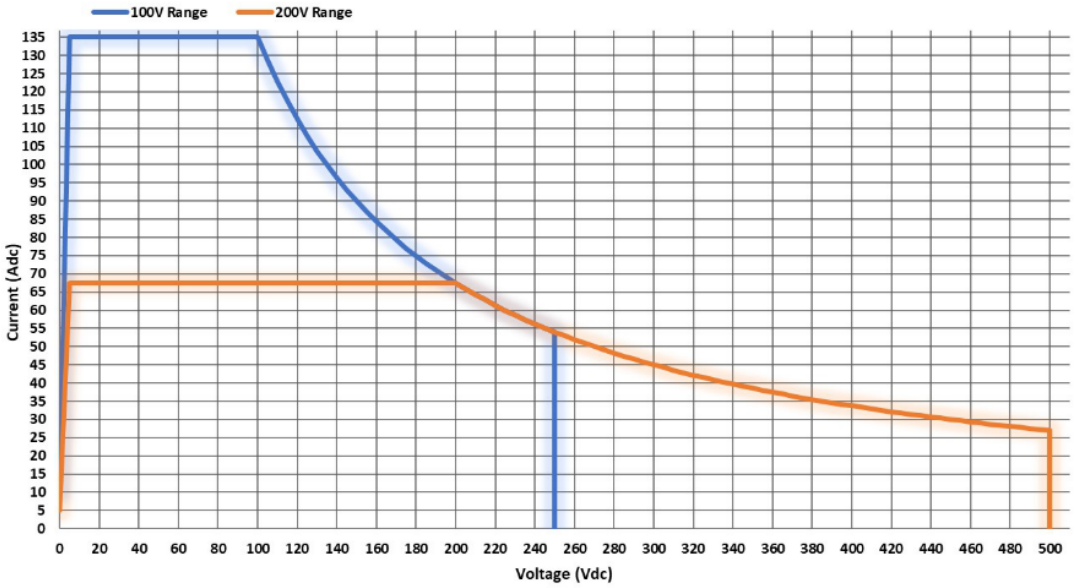
ASR123-351RK DC Mode Operating Area



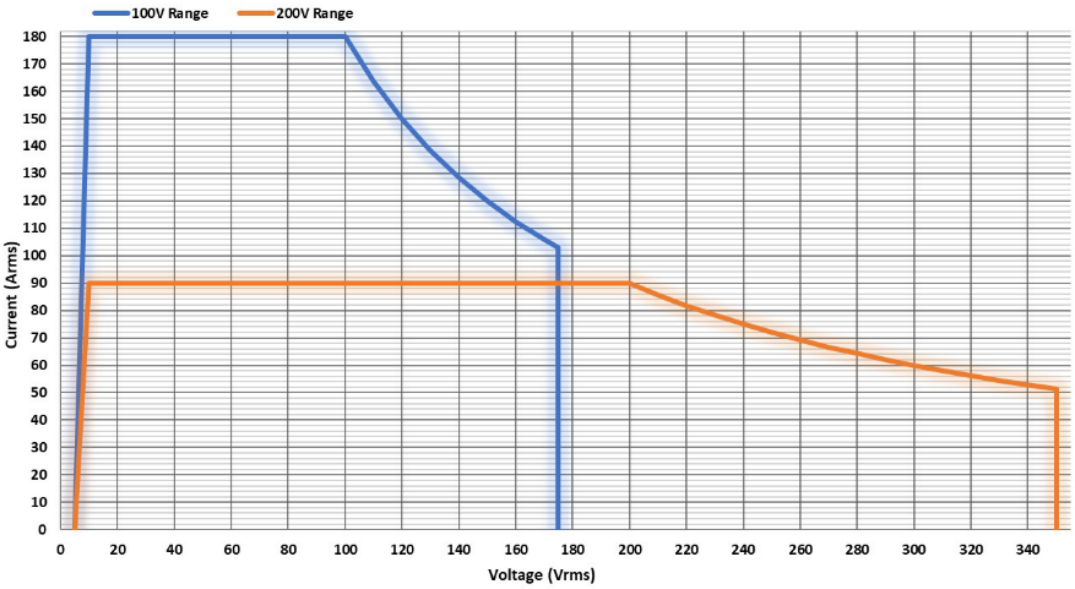
ASR133-351RK AC Mode Operating Area



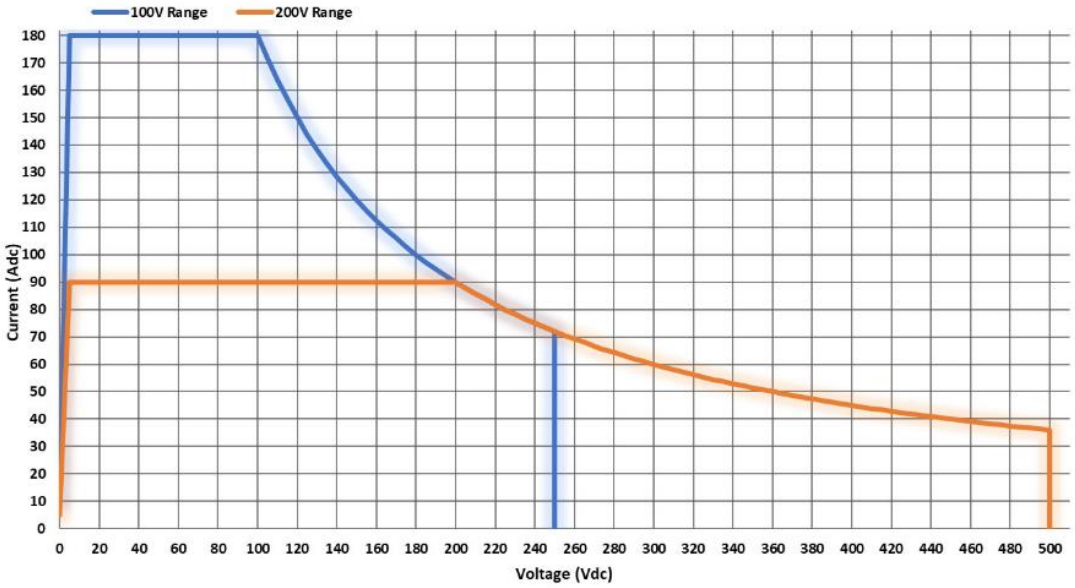
ASR133-351RK DC Mode Operating Area



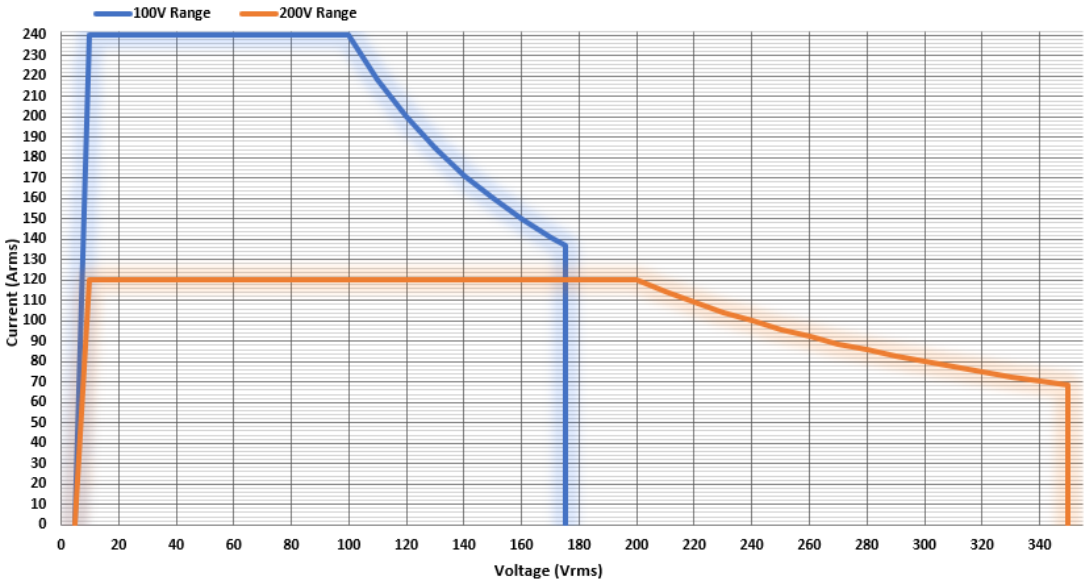
ASR183-351RK AC Mode Operating Area



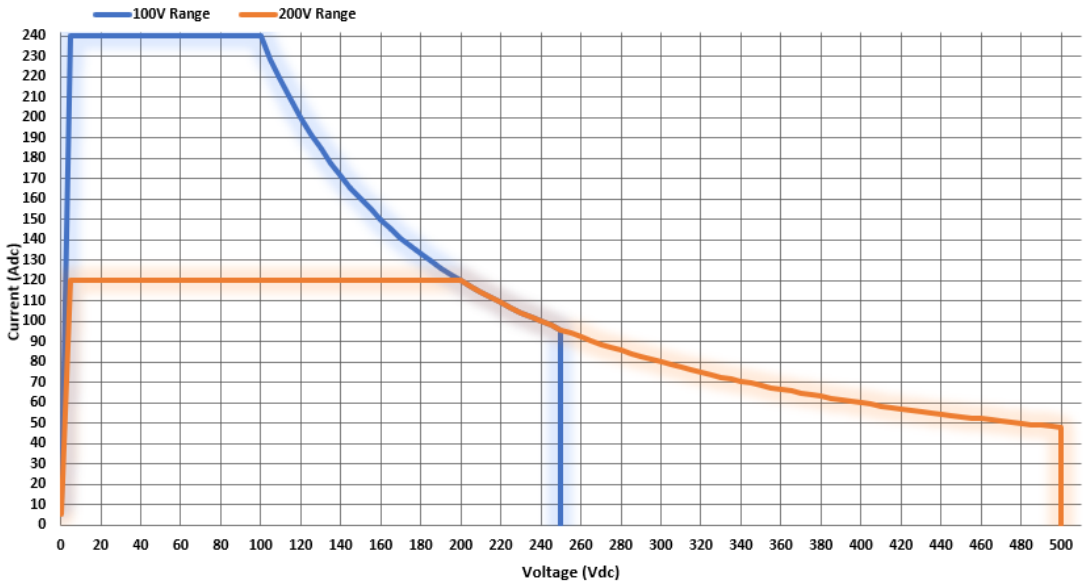
ASR183-351RK DC Mode Operating Area



ASR243-351RK AC Mode Operating Area



ASR243-351RK　DC Mode Operating Area



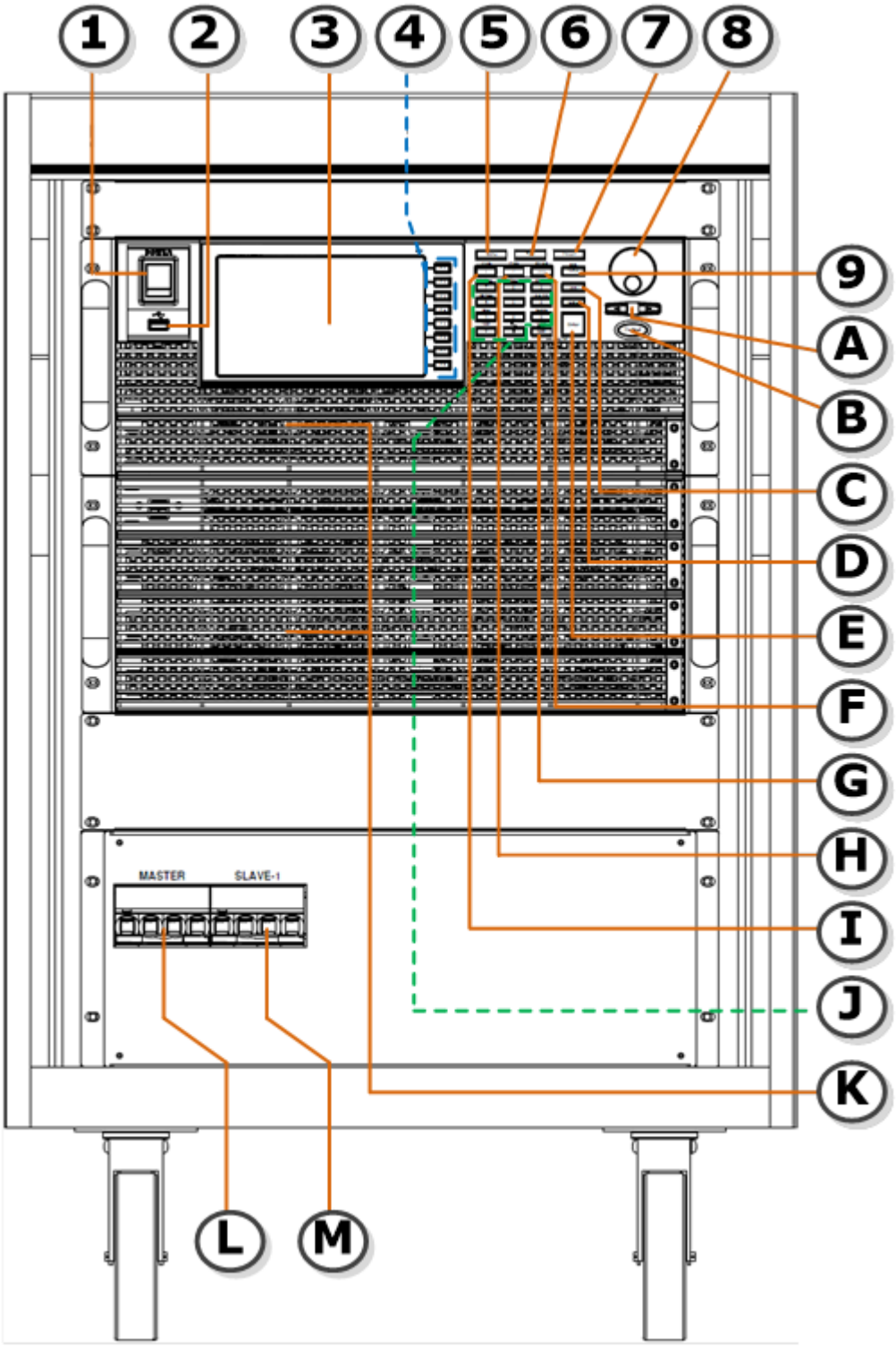
1-1-1. Accessories

Before using the ASR-RK power source unit, check the package contents to make sure all the standard accessories are included.

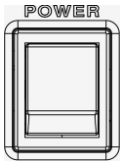
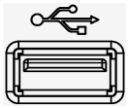
Standard Accessories	Part number	Description
	---	Safety guide
	62SR-6KDSC201	Input terminal cover
	62SR-6KDSC301	
	62SR-6KDSC501	Output terminal cover
	62SR-6KDSC601	
	GTL-246	USB cable (USB 2.0 Type A - Type B cable, approx. 1.2M)
Optional Accessories	**Part number**	**Description**
	GTL-232	RS-232C cable, approx. 2M
	CB-2420P	GP-IB cable, approx. 2M
	ASR-003	GP-IB interface card

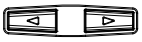
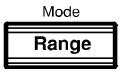
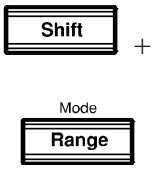
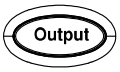
1-2. Appearance

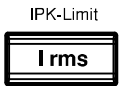
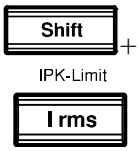
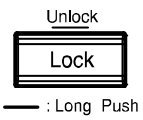
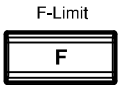
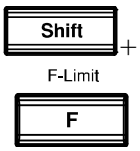
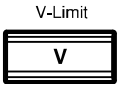
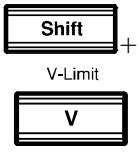
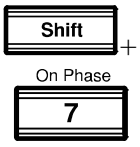
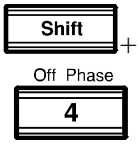
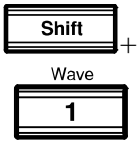
1-2-1. Front Panel

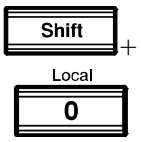
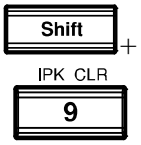
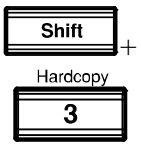
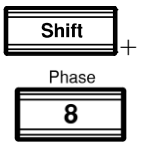
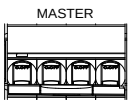
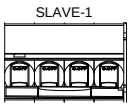


Index	Description
1	Power switch button
2	USB interface connector (A Type)
3	LCD screen
4	Function keys (blue zone)
5	Menu key
6	Test key
7	Preset key
8	Scroll wheel
9	Range key / Output mode key
A	Arrow keys
B	Output key
C	Shift key
D	Cancel key
E	Enter key
F	Irms / IPK-Limit button
G	Lock / Unlock button
H	F / F-Limit button
I	V / V-Limit button
J	Numerical Keypad with additional “Shift + key” shortcut functions (green zone)
K	Air inlets
L	Master Circuit Breaker
M	Slave Circuit Breaker

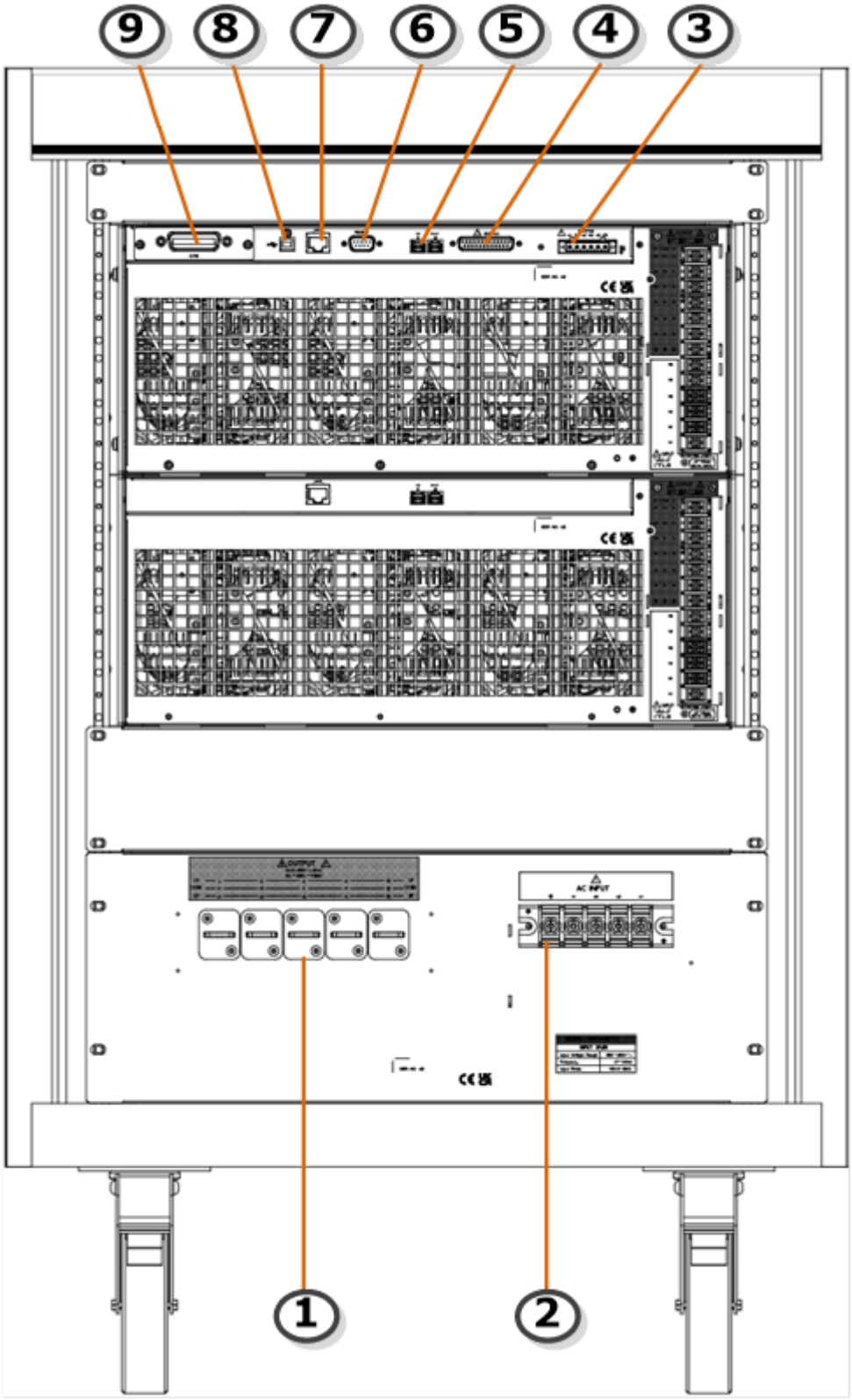
Item	Description	
Power Switch		Turn on the mains power
USB A Port		The USB port is used for data transfers and upgrading software. Also, it is available for screenshot hardcopy.
	⚠ It supports FAT32 format with maximum 32G storage.	
LCD Screen		Displays the setting and measured values or menu system

Function Keys		Assigned to the functions displayed on the right side of the screen.
Menu Key		Enters the Main menu or goes back to one of the display modes.
Test Key		Puts the instrument into the Sequence and Simulation control mode.
Preset Key		Puts the instrument into Preset mode.
Arrow Keys		The arrow keys are used to select the digit power of a value that is being edited.
Range Key		Switches between the 100V, 200V and AUTO ranges
Output Mode		Selects between the AC+DC-INT, AC-INT, DC-INT, AC+DC-EXT, AC-EXT, AC+DC-ADD, AC-ADD, AC+DC-Sync, AC-Sync and AC-VCA modes.
Scroll Wheel		Used to navigate menu items or for increment / decrement values one step at a time.
Output Key		Turns the output on or off.
Shift Key		Turns on the shift state, which enables shortcut operations with an icon Shift indicated on the top status bar. The shift state, which allows continuous shortcut operations, is kept until another press on shift key again.
	⚠ When performing shortcut operations, press shift key followed by another shortcut function key. Do Not press both shift key and shortcut function key simultaneously.	

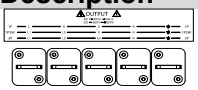
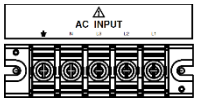
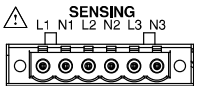
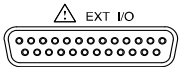
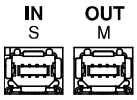
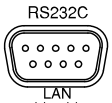
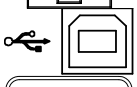
Cancel Key		Used to cancel function setting menus or dialogs.
Enter Key		Confirms selections and settings.
Irms		Used for setting the maximum output current.
IPK-Limit		Used to set the peak output current limit value.
Lock/Unlock Key		Used to lock or unlock the front panel keys except output key. Simply press to lock, whilst long press to unlock.
F		Used for setting the output frequency (DC mode N/A).
F-Limit		Used for setting the output frequency limit value (DC mode N/A).
V		Used for setting the output voltage.
V-Limit		Used for setting the output voltage limit value.
Keypad		Used to input power of a value directly. The  key is used to input decimal / plus or minus.
On Phase		Sets the on phase for the output voltage.
Off Phase		Sets the off phase for the output voltage.
Output Waveform		Selects between the Sine, Square, Triangle and ARB 1~253 waveforms (not available for DC-INT, AC+DC-EXT and AC-EXT).

Local Mode		Switches operation back to local mode from remote mode.
IPK CLR		Used to clear peak output current value.
ALM CLR		Clears alarms.
Hardcopy Key		Used to take a screenshot. Make sure an USB flash disk in well inserted before the action.
Output Phase		Used to prompt the output phase window where 1P2W, 1P3W and 3P4W modes are available for selection.
Master Circuit Breaker		Input power circuit breaker of ASR-RK Master unit
Slave Circuit Breaker		Input power circuit breaker of ASR-RK Slave unit

1-2-2. Rear Panel



Item Index	Description
1	Output terminal
2	AC power input terminal
3	Remote sensing input terminal
4	External I/O connector
5	External IN/OUT connection in parallel function
6	RS232 connector
7	Ethernet (LAN) connector
8	USB interface connector (B Type)
9	Optional interface Slot ▪ GPIB card (ASR-003)

Item	Description	
Output Terminal		Output terminal (M8 screw nut and M3 screw)
AC Power Input Terminal		AC inlet (depend on models) (M5 screw type, 2 ~ 14 AWG, screw torque value: 2 ~ 2.5 N·m) (M8 screw type, 2/0 ~ 10 AWG, screw torque value: 3.5 ~ 6 N.m)
Remote Sensing Input Terminal		Remote sensing input terminal is for compensation of load wire voltage drop. (M2.5 screw type, 12 ~ 30 AWG, screw torque value: 0.5N*m, strip length: 7 ~ 8mm)
External Control I/O Connector		Used to control ASR-RK externally by using the logic signal and monitor Sequence function status.
External IN/OUT Connection in Parallel Function		The IN (Slave) and OUT (Master) ports are used for connection with external unit in parallel function.
RS232C Connector		The RS-232C connector for controlling the ASR-RK remotely.
Ethernet LAN Port		The Ethernet port is used for remote control.
USB B-type Port		USB port for controlling the ASR-RK remotely.
Optional GPIB Connector		The optional GPIB connector for controlling the ASR-RK remotely.

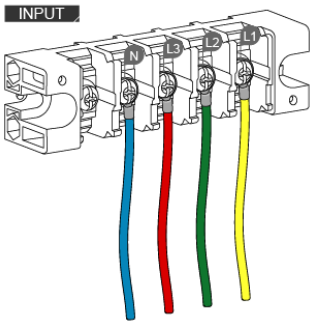
2. OPERATION

We take the illustration of 3P4W Input Connection here for example. Please refer to page 16 of the Input Terminal Connection chapter for the detailed information covering the 2 different connection methods.

2-1. Power Up and Procedure

Steps

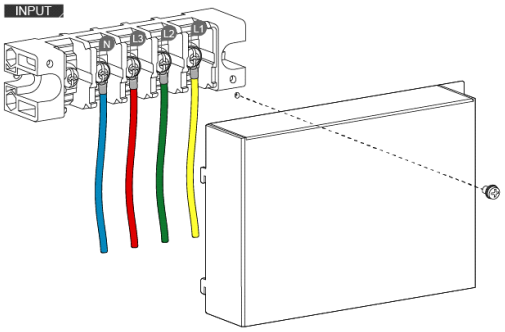
1. Connect the AC power cords to the AC input terminals.
   - Red⇒L3
   - Green⇒L2
   - Yellow⇒L1
   - Blue⇒Neutral



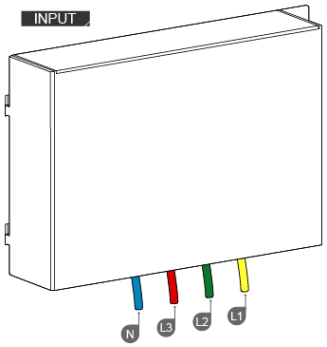
Note

- Power input cords are not included in this product.
- The input & output terminals necessitate connectivity through ring-type connectors.

2. Install the protective lid of power input terminals followed by fastening the single screw to fix the lid firmly into place.



3. The AC power cords of 3P4W input are connected with the AC input terminals equipped with protective lid completely.



4. Turn ON circuit breakers in the sequence of MASTER followed by SLAVE. In the case of multiple SLAVE units in parallel connection, turn ON each circuit breaker of SLAVE in proper sequence, e.g., SLAVE-1 -> SLAVE-2, and so forth.

5. Press the POWER key. The welcome screen of TEXIO will be displayed followed by self-checking procedure before the continuous mode screen appears with the settings loaded.

CAUTION

- If the warning message of “Parallel Communication Error” appears in the screen display, turn Off both POWER key and circuit breakers followed by repeating the appropriate power up procedure above.
- Contact local dealer in your region if the warning message of “Parallel Communication Error” can Not be solved after repeating the power up procedure.
- The power supply takes around 35 seconds to fully turn on and shutdown.
- Do not turn the power on and off quickly, otherwise the unit will be damaged due to insufficient time for self-checking procedure. It is recommended to observe an interval of at least 10 seconds between power on and off.

2-2. Input Terminal Connection

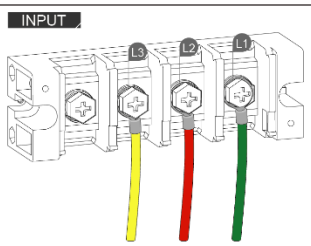
Background

Basically, the input terminal, which is located in the rear panel of unit, can be connected through 2 methods: 3P4W and 3P3W connections. Depending on varied input methods, use the corresponding power cords for connection. Refer to the following chapters for details of each connection.

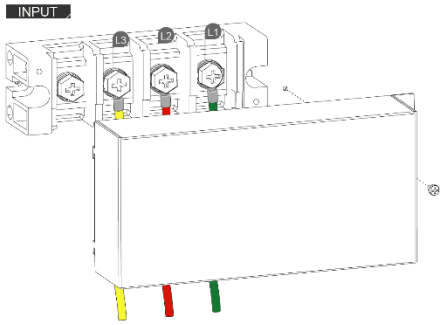
Input Terminal 3P3W Connection

Steps

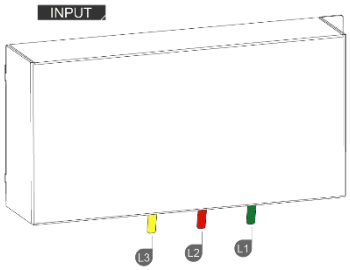
1. Connect the AC power cords to the AC input terminals.
   - Yellow⇒L3
   - Red⇒L2
   - Green⇒L1



2. Install the protective lid of power input terminals followed by fastening the single screw to fix the lid firmly into place.

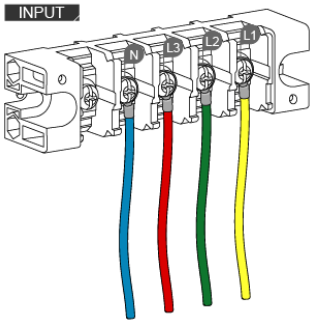
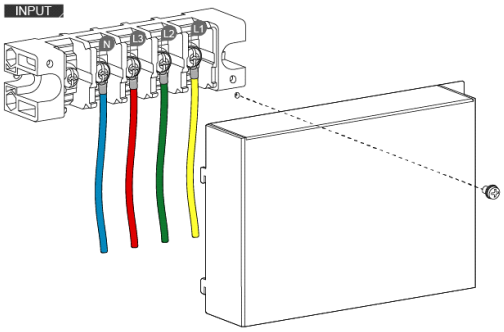
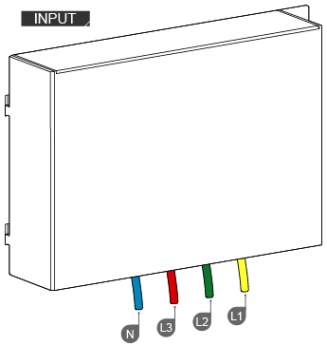


3. The AC power cords of 3P3W input are connected with the AC input terminals equipped with protective lid completely.



Note	● Power input cords are not included in this product. ● The input & output terminals necessitate connectivity through ring-type connectors. ● The diagram is only for reference on wiring method. Please proceed to wiring in accordance with the color definitions in your local country.

Input Terminal 3P4W Connection

Steps	1. Connect the AC power cords to the AC input terminals. ● Red⇒L3 ● Green⇒L2 ● Yellow⇒L1 ● Blue⇒Neutral	
	2. Install the protective lid of power input terminals followed by fastening the single screw to fix the lid firmly into place.	
	3. The AC power cords of 3P4W input are connected with the AC input terminals equipped with protective lid completely.	
Note	● Power input cords are not included in this product. ● The input & output terminals necessitate connectivity through ring-type connectors. ● The diagram is only for reference on wiring method. Please proceed to wiring in accordance with the color definitions in your local country.	

2-3. Output Terminal Connection

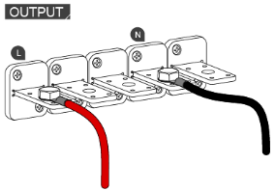
Background	The output terminal can output power in three modes: 1P2W, 1P3W and 3P4W. Select applicable output mode, via panel configurations, in accordance with varied applications.

WARNING	Be aware of dangerous voltages. Ensure that the power to the instrument is disabled before handling the power supply output terminals. Failing to do so may lead to electric shock.
CAUTION	After configuring phase settings via the front panel, please make sure the cords connection on the rear panel is corresponding to the set configuration.

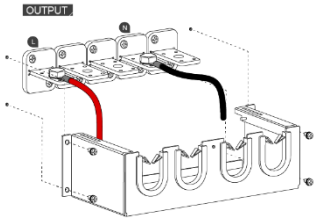
1P2W Output Connection

Steps

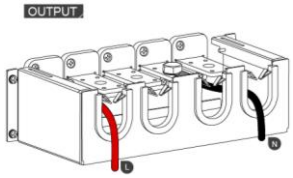
1. Disconnect the ASR-RK unit from the mains power socket and turn the power switch off before wires connection.
2. Connect the output wires to the AC output terminals as follows:
   - Red⇒Line (L)
   - Black⇒Neutral (N)



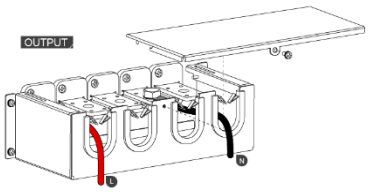
3. Install the protective cover of power output terminals followed by fastening the 4 screws to fix the protective cover firmly into place.



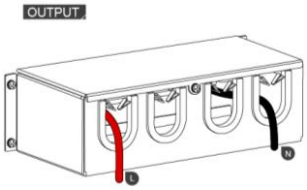
4. The protective cover of power output terminals is well installed and fixed on the rear panel.



5. Install the protective lid of power output terminals followed by fastening the single screw to fix the lid firmly into place.



6. The AC power cords of 1P2W output are connected with the AC output terminals equipped with protective cover and lid completely.

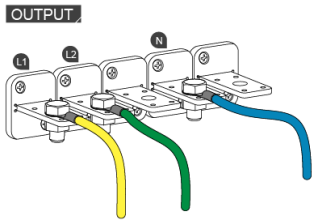


Note	Grounded Neutral Output for 1P2W output only: ASR-RK allows for a grounded return on the neutral output. It is suit for the medical industry that required between ground with neutral is 0 V essentially. And possible to mitigate ground loops that is ideal for reduce ground noise and isolate sensitive equipment from the effects of ground loops.
WARNING	Because the neutral has been referenced to the chassis ground, be careful electric shock by yourself.
Note	● Power output cords are not included in this product. ● The input & output terminals necessitate connectivity through ring-type connectors. ● The diagram is only for reference on wiring method. Please proceed to wiring in accordance with the color definitions in your local country.

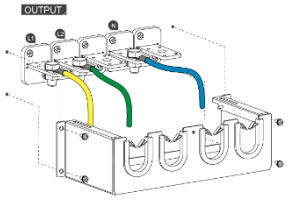
1P3W Output Connection

Steps

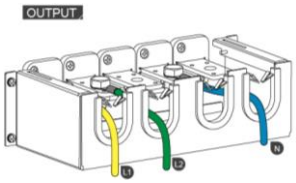
1. Disconnect the ASR unit from the mains power socket and turn the power switch off before wires connection.
2. Connect the output wires to the AC output terminals as follows:
   - Yellow⇒Line(L1)
   - Green⇒Line(L2)
   - Blue⇒Nutral(N)

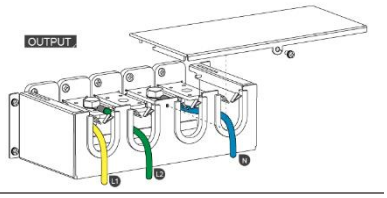
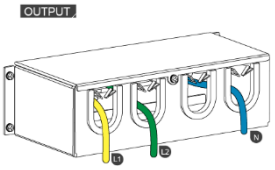


3. Install the protective cover of power output terminals followed by fastening the 4 screws to fix the protective cover firmly into place.

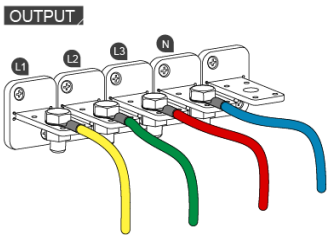
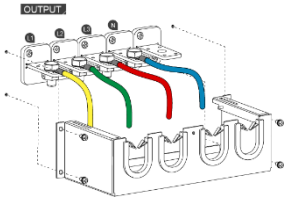
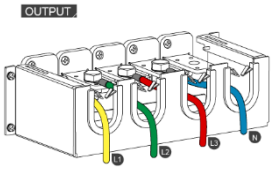


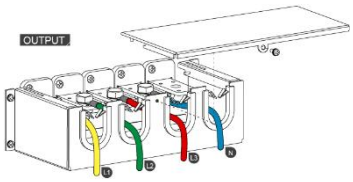
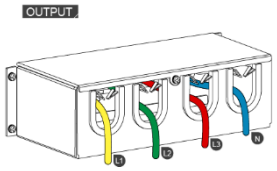
4. The protective cover of power output terminals is well installed and fixed on the rear panel.



	5. Install the protective lid of power output terminals followed by fastening the single screw to fix the lid firmly into place.	
	6. The AC power cords of 1P3W output are connected with the AC output terminals equipped with protective cover and lid completely.	
Note	● Power output cords are not included in this product. ● The input & output terminals necessitate connectivity through ring-type connectors. ● The diagram is only for reference on wiring method. Please proceed to wiring in accordance with the color definitions in your local country.	

3P4W Output Connection

Steps	1. Disconnect the ASR unit from the mains power socket and turn the power switch off before wires connection.	
	2. Connect the output wires to the AC output terminals as follows: ● Yellow⇒Line(L1) ● Green⇒Line(L2) ● Red⇒Line(L3) ● Blue⇒Nutral(N)	
	3. Install the protective cover of power output terminals followed by fastening the 4 screws to fix the protective cover firmly into place.	
	4. The protective cover of power output terminals is well installed and fixed on the rear panel.	

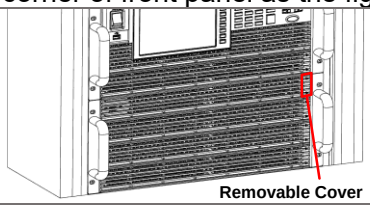
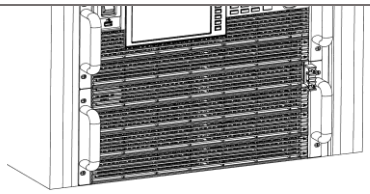
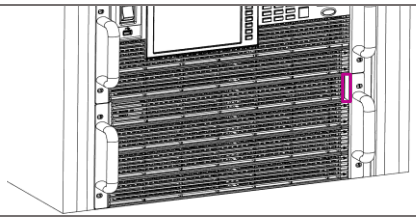
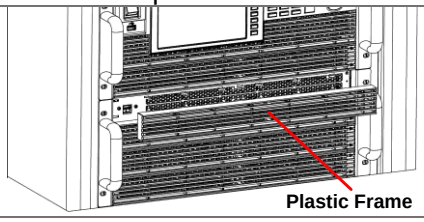
	5. Install the protective lid of power output terminals followed by fastening the single screw to fix the lid firmly into place.	
	6. The AC power cords of 3P4W output are connected with the AC output terminals equipped with protective cover and lid completely.	
Note	● Power output cords are not included in this product. ● The input & output terminals necessitate connectivity through ring-type connectors. ● The diagram is only for reference on wiring method. Please proceed to wiring in accordance with the color definitions in your local country.	

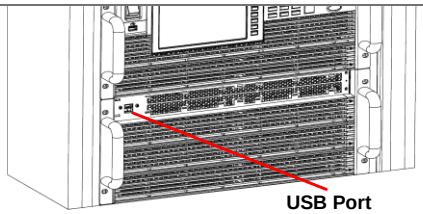
2-4. Remote Sensing, EXT I/O and Interface Connection

Remote Sensing	Remote sense is used to compensate for the voltage drop seen across load cables due to resistance inherent in the load cables. The remote sense function can compensate a maximum of 5% of the output voltage and all of output frequency. Based on different 3 output methods, the connections of remote sense vary accordingly. Refer to the following chapters of remote sense connections for each power output method. For information on remote sense connections for each power supply output method, refer to the ASR4.5k / 6k instruction manual.
	Dangerous voltages. Ensure that the power to the instrument is disabled before handling the power supply output terminals. Failing to do so may lead to electric shock.
Note	To minimize noise pickup or radiation, the load wires and remote sense wires should be twisted-pairs of the shortest possible length. Shielding of the sense leads may be necessary in high noise environments. Where shielding is used, connect the shield to the chassis via the rear panel ground screw. Even if noise is not a concern, the load and remote sense wires should be twisted-pairs to reduce coupling, which might impact the stability of the power supply. The sense leads should be separated from the power leads.
EXT I/O & Interface	Since EXT I/O & Interface connections relate to several types and connectors, refer to User Manual of ASR 4.5k / 6k for more details when necessary.

3. APPENDIX

3-1. Firmware Update

Background	The ASR series firmware can be upgraded using the USB A port on the front panel. See your local distributor or the TEXIO website for the latest firmware information. https://www.texio.co.jp
CAUTION	● Both Master and Slave ASR units are required to be plugged in USB flash drives with the identical firmware version in order to complete update process simultaneously. ● To be free from unexpected erroneous issues, please prepare, for example, 4 USB flash drives for 1 Master and 3 Slave units in parallel connection. DO NOT update partial ASR units, e.g., only update Master but without Slave units. ● Ensure the DUT is not connected. ● Ensure the output is surely off.
Steps	1. Since the USB A-type port is hidden within a plastic frame in Slave unit, please identify the removable cover in the right-side corner of front panel as the figure shown below.
	
	2. Loosen the two screws on the removable cover.
	
	3. The removable cover is removed accordingly.
	
	4. Pull out the plastic frame from ASR Slave unit.
	
	5. The plastic frame was removed and thus the USB A-type port of Slave unit appears.

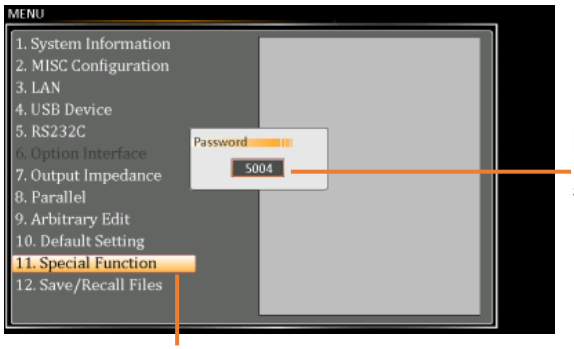


6. Repeat the previous step 1 to step 5 for each connected ASR Slave unit.

7. 7. Insert USB flash drives into the USB A-type ports on front panel of both Master and Slave units. The USB drives should include the texio_sb6.upg file in a directory name“TEXIO”.

8. Press the Menu key on the Master unit. and the Menu setting will appear on the display of Master unit

9. Use the scroll wheel to go to item 11, Special Function and press Enter.



Password

5004

11. Special Function

10. Key in the password when prompted and then press Enter. The password is “5004”.

11. Go to Item 1, Update Firmware and press Enter.

F4 Exit

12. Wait for the units to update. Upon completion the units will automatically reboot.

Note

If the following case occurs during update process as the diagram below, it indicates failure of update and please thus contact TEXIO or your local dealer.

3-2. Function Difference Table

A Comparison between Stand Alone Type and RK Type

The difference functions			
Item	**Description**	**Stand Alone Type**	**RK Type**
1	V Response	Fast, Medium(default), Slow	Medium(default), Slow
2	Output Impedance Setting	O	X
3	External Parallel Operation	2~3 units flexible	Fixed

3-3. Factory Default Settings

The following default settings are the factory configuration settings for the ASR-RK series.

For details on how to return to the factory default settings, refer to the User Manual of ASR-4.5k / 6k.

Continuous Mode	**ASR902-351RK**		**ASR123-351RK**		**ASR133-351RK**		**ASR183-351RK**		**ASR243-351RK**	
	3P4W	**1P2W**	**3P4W**	**1P2W**	**3P4W**	**1P2W**	**3P4W**	**1P2W**	**3P4W**	**1P2W**
MODE	AC+DC-INT Mode									
Range	100V									
ACV	0.00 Vrms									
DCV	+0.00 Vdc									
FREQ	50.00 Hz									
IRMS	30.00 A	90.00 A	40.00 A	120.0 A	45.00 A	135.0 A	60.00 A	180.0 A	80.00 A	240.0 A
ON Phs	Fixed 0.0°									
OFF Phs	Fixed 0.0°									
Gain	100									
SIG	L1 LINE									
SRC	L1 EXT									
Wave	SIN									

Syc Phs	0									
Freq Limit	2000 Hz									
Vrms Limit	175.0 Vrms									
VPK+ Limit	+ 250 V									
VPK- Limit	- 250 V									
IPK+ Limit	+120.0 A	+360.0 A	+160.0 A	+480.0 A	+180.0 A	+540.0 A	+240.0 A	+720.0 A	+320.0 A	+960.0 A
IPK- Limit	-120.0 A	-360.0 A	-160.0 A	-480.0 A	-180.0 A	-540.0 A	-240.0 A	-720.0 A	-320.0 A	-960.0 A

MISC Configuration	**ASR902-351RK**	**ASR123-351RK**	**ASR133-351RK**	**ASR183-351RK**	**ASR243-351RK**
T peak, hold(msec)	1				
Phase Mode	Unbalance				
Peak CLR	ALL				
Power ON	OFF				
Buzzer	ON				
Remote Sense	OFF				
V Response	Medium				
Output Relay	Enable				
Measure Unit	RMS				
THD Format	IEC				
External Control I/O	OFF				
V Unit (TRI, ARB)	rms				
Set Change Phase	OFF				
Monitor Output1	L1 Voltage				
Monitor Output2	L1 Current				
Monitor Output Amp	±2.5				
TrgOut Width (ms)	0.1				
TrgOut Source	L1				
Re-Lock	ON				
Data Average Count	8				
Data Update Rate	Fast				

LAN	ASR902-351RK	ASR123-351RK	ASR133-351RK	ASR183-351RK	ASR243-351RK
DHCP			ON		

USB Device	ASR902-351RK	ASR123-351RK	ASR133-351RK	ASR183-351RK	ASR243-351RK
Speed			Full		
Mode			TMC		

RS232C	ASR902-351RK	ASR123-351RK	ASR133-351RK	ASR183-351RK	ASR243-351RK
Baudrate			9600		
Databits			8bits		
Parity			None		
Stopbits			1bit		

GPIB	ASR902-351RK	ASR123-351RK	ASR133-351RK	ASR183-351RK	ASR243-351RK
Address			10		

Sequence Mode	ASR902-351RK	ASR123-351RK	ASR133-351RK	ASR183-351RK	ASR243-351RK
Step			0		
Time			0.1000 S		
Jump to			OFF		
Jump Cnt			1		
Branch1			OFF		
Branch2			OFF		
Term			CONTI		
Sync Code			LL		
Item	L1 L2 L3	L1 L2 L3	L1 L2 L3	L1 L2 L3	L1 L2 L3
	0.00,CT	0.00,CT	0.00,CT	0.00,CT	0.00,CT
ACV	0.00,CT	0.00,CT	0.00,CT	0.00,CT	0.00,CT
	0.00,CT	0.00,CT	0.00,CT	0.00,CT	0.00,CT
	0.00, CT	0.00, CT	0.00, CT	0.00, CT	0.00, CT
DCV	0.00,CT	0.00,CT	0.00,CT	0.00,CT	0.00,CT
	0.00,CT	0.00,CT	0.00,CT	0.00,CT	0.00,CT
	50.0,CT	50.0,CT	50.0,CT	50.0,CT	50.0,CT
Fset	50.0,CT	50.0,CT	50.0,CT	50.0,CT	50.0,CT
	50.0,CT	50.0,CT	50.0,CT	50.0,CT	50.0,CT
Wave			SIN		

Trig Out			LO		
ON Phs			Free		
OFF Phs			Free		
Phase	Fixed(0) 120 240	Fixed(0) 120 240	Fixed(0) 120 240	Fixed(0) 120 240	Fixed(0) 120 240

Sequence Mode	**ASR902-351RK**	**ASR123-351RK**	**ASR133-351RK**	**ASR183-351RK**	**ASR243-351RK**
Step			Initial		
Repeat			OFF		
Time			0.1000 S		
Term			Free		
Code			LL		
Item	L1 L2 L3	L1 L2 L3	L1 L2 L3	L1 L2 L3	L1 L2 L3
ACV	0.00	0.00	0.00	0.00	0.00
Fset	50.00	50.00	50.00	50.00	50.00
Wave			SIN		
ON Phs			Free		
OFF Phs			Free		

3-4. Error Messages & Messages

The following error messages or messages may appear on the ASR-RK screen display during varied operations.

Normal Messages	Description	Protection type
Keys Locked	All of keys are locked, except output key, long push “Lock” to disable Keys Locked	Display Message Only
Keys Unlocked	All of keys are unlocked	Display Message Only
Invalid with Remote Control	All of keys are locked, except Output and Shift and Local Key, press "Shift + 0" to disable Remote Control	Display Message Only
Invalid with Remote Lock Control	All of keys including Output and Local Keys are locked.	Display Message Only
Invalid in This Meter Frozen	Invalid Operation In This Meter Frozen, press "F8" to disable Meter Frozen	Display Message Only
Invalid in This Page	Invalid Operation In This Page. Valid main and simple page for preset mode.	Display Message Only
Recalled From M#	Recalled Preset From M0 ~ M9	Display Message Only
Saved To M#	Saved Preset To M0 ~ M9	Display Message Only
Setting Voltage Limited	Setting voltage be limited, press "shift + V" to check allowance set range	Display Message Only
Setting Frequency	Setting frequency be limited, press "shift + F" to	Display

Limited	check allowance set range	Message Only
Setting Phase Limited	Setting ON/OFF Phase Limited	Display Message Only
Setting Duty Limited	Setting Duty be limited	Display Message Only
Invalid with Output ON	Invalid with Output ON	Display Message Only
Rear USB Port Connected To PC	Rear USB port connected to PC	Display Message Only
Rear USB Port Disconnected From PC	Rear USB port disconnected from PC	Display Message Only
Reseting...	Ready For Recall Factory Default	Display Message Only
Failed Factory Default	Recall Factory Default Failed	Display Message Only
Error Password	Input Error Password	Display Message Only
USB Memory Unconnected	Could not detect USB memory, please connect a USB memory.	Display Message Only
No File ([Filename]) in [directory]	Not find specific file in USB specific directory	Display Message Only
Saved to DEF1	Saved Setting to DEF1	Display Message Only
Saved to DEF2	Saved Setting to DEF2	Display Message Only
Preset Mode	Operation at preset mode	Display Message Only
Exit Preset Mode	Exit preset mode	Display Message Only
Meter Frozen	Operation at Meter Frozen mode, all measure value will stop update.	Display Message Only
Only AC-INT and 50 / 60Hz Active	Harmonic Page Limit Message	Display Message Only
Configure Phase Toggle,Please wait...	Configure Phase Toggle	Display Message Only
[Filename] Saved Success	Save file to USB success message. [Filename] ex Preset0.Set or SEQ0.SEQ or SIM0.SIM or ARB1.ARB	Display Message Only
[Filename] Saved Fail	Save file to USB fail message	Display Message Only
[Filename] Recalled Success	Recalled file success message	Display Message Only
[Filename] Recall Fail(No File in [directory])	Recall file fail message(not find specific file in USB specific directory)	Display Message Only
[Filename] Recall Fail(File Format Error)	Recall file fail message(file format error)	Display Message Only
[Filename] Recall Fail(File Data Error)	Recall file fail message(file Data error(Data out of Range))	Display Message Only
Preset M# Deleted	Preset M0~M9 Deleted	Display

		Message Only
ARB# Deleted	ARB1~ARB253 Deleted	Display Message Only
Save All Data	Ready to save all data (Preset0~9 + SEQ0~9 + SIM0~9 + ARB1~253)	Display Message Only
All Data Saved Success	All data are saved successfully (Preset0~9 + SEQ0~9 + SIM0~9 + ARB1~253)	Display Message Only
Recall All Data	Ready to recall all data (Preset0~9 + SEQ0~9 + SIM0~9 + ARB1~253)	Display Message Only
All Data Recall Success	All data are recalled successfully (Preset0~9 + SEQ0~9 + SIM0~9 + ARB1~253)	Display Message Only
Delete All Data	Ready to delete all data (Preset0~9 + SEQ0~9 + SIM0~9 + ARB1~253)	Display Message Only
All Data Deleted	All data are deleted successfully (Preset0~9 + SEQ0~9 + SIM0~9 + ARB1~253)	Display Message Only
USB Memory Connected	Detect USB Memory connected	Display Message Only
USB Memory Access Error	Please check a FAT32-formatted USB memory, and Reinsert USB memory	Display Message Only
USB File Write Error!	Can not Save File to USB	Display Message Only
Screen Saved to USB:/GWDIMC###.bmp	Screenshot be saved to USB memory successful	Display Message Only
Hardcopy Fail!(Too Many Files in USB)	Hardcopy Fail !, Over 1000 files in USB	Display Message Only
Valid Only AC-INT, DC-INT and AC-Sync Mode	Remote Sense Setting Limit Message	Display Message Only
Valid Only 100V and 200V Range		Display Message Only
Valid Only SIN Wave Shape		Display Message Only
Saved To ARB#	Saved to ARB1 ~ ARB253	Display Message Only
Saved To ARB#,V-Limit Invalid	Saved to ARB1 ~ ARB253,V-Limit Invalid	Display Message Only
Saved To ARB#,V-Limit & Freq Invalid	Saved to ARB1 ~ ARB253,V-Limit and Freq Invalid	Display Message Only
Saved To ARB Fail	Failed to save ARB file, please check whether the file is correct	Display Message Only
Invalid in This Output Mode	This mode not support SEQ or SIM Valid Only AC+DC-INT, AC-INT and DC-INT Mode for SEQ Valid Only AC+DC-INT Mode for SIM	Display Message Only
Invalid For Auto Range	Auto range not allow SEQ / SIM, change the output range	Display Message Only
Invalid with Output OFF, Turn ON the Output First	The output offstate does not allow the execution, turn on the output first	Display Message Only
Invalid with Output ON, Turn OFF the Output First	The output onstate does not allow the execution, turn off the output first	Display Message Only
Invalid in This	Invalid Operation In This Sequence	Display

Sequence		Message Only
Invalid in This Simulate	Invalid Operation In This Simulate	Display Message Only
SEQ#Deleted	SEQ0~SEQ9 Deleted	Display Message Only
SIM#Deleted	SIM0~SIM9 Deleted	Display Message Only
Cleared SEQ#	Cleared SEQ0~SEQ9	Display Message Only
Cleared SIM#	Cleared SIM0~SIM9	Display Message Only
Recalled from SEQ#	Recalled fromSEQ0 ~ SEQ9	Display Message Only
Recalled from SIM#	Recalled fromSIM0 ~ SIM9	Display Message Only
Recall Fail!/Recall Data Fail!	SEQ0 ~ SEQ9or SIM0 ~ SIM9Recall Fail!	Display Message Only
Saved to SEQ#	Saved toSEQ0 ~ SEQ9	Display Message Only
Saved to SIM#	Saved toSIM0 ~ SIM9	Display Message Only
Save Fail!	SEQ0 ~ SEQ9 or SIM0 ~ SIM9 save fail!	Display Message Only
Sequence preparation...	Sequence preparation, please wait some time	Display Message Only
Sequence is ready.	Sequence is ready.	Display Message Only
Simulation preparation...	Simulation preparation, please wait some time	Display Message Only
Simulation is ready.	Simulation is ready.	Display Message Only
Alarm Clear Please Wait...	Alarm Clear Please Wait...	Display Message Only
Master Wait Connecting../Slave Wait Connecting..	Master or slave waits for parallel connection	Display Message Only
Valid Only Standalone	Output Impedance Valid Only Standalone	Display Message Only
CANopen Duplicate Node ID	CANopen Duplicate Node ID	Display Message Only
DeviceNet Duplicate Node ID	DeviceNet Duplicate Node ID	Display Message Only
Parallel Error/Parallel Communication Error (#)	Parallel Communication Error (0~9)	Display Message Only

3-5. Specifications

The specifications apply when the ASR-RK is powered on for at least 30 minutes.

3-5-1.Electrical specifications - ASR902-351RK / ASR123-351RK

Model Input ratings	ASR902-351RK	ASR123-351RK
Power type	Three-phase, Delta or Y connection	
Voltage range[*1]	Three-phase, Delta：200V～240V±10% or Three-phase, Y connection：380V~460V±10%	Factory specified
Frequency range	47Hz to 63Hz	
Power factor[*2]	0.95 or higher (typ.)	
Efficiency[*2]	80 % or higher	
Maximum power consumption	12kVA or lower	16kVA or lower

Model AC output		ASR902-351RK		ASR123-351RK	
Multi-phase output		Single-phase output	Polyphase output	Single-phase output	Polyphase output
Output capacity		9kVA	1P3W: 6kVA 3P4W: 9kVA	12kVA	1P3W: 8kVA 3P4W: 12kVA
Mode		1P2W	1P3W 3P4W (Y-connection)	1P2W	1P3W 3P4W (Y-connection)
Setting mode[*3]		---	Unbalance, Balance	---	Unbalance, Balance
Phase voltage	Setting Range[*4]	0.00V to 175.0V / 0.0V to 350.0V (sine and square wave), Setting Resolution: 0.01V / 0.1V			
		0.00Vpp to 500.0Vpp / 0.00Vpp to 1000Vpp (triangle and arbitrary wave), Setting Resolution: 0.01Vpp / 0.1Vpp / 1Vpp			
	Accuracy[*5]	±(0.3% of set + 0.5V / 1V)			
Line voltage setting range[*6]			1P3W: 0.00V to 350.0V / 0.00V to 700.0V 3P4W: 0.00V to 303.1V /		1P3W: 0.00V to 350.0V / 0.00V to 700.0V 3P4W: 0.00V to 303.1V /

		0.00V to 606.2V (sine wave only) Setting Resolution: 0.01V / 0.1V		0.00V to 606.2V (sine wave only) Setting Resolution: 0.01V / 0.1V
Maximum current[*7]	90A / 45A	30A / 15A	120A / 60A	40A / 20A
Maximum peak current[*8]	Four times of the maximum RMS current			
Load power factor[*9]	0 to 1 (leading phase or lagging phase, 45Hz to 65Hz)			
Frequency	Setting range	AC Mode: 15.00Hz to 1000.0Hz, AC+DC Mode: 1.00Hz to 1000.0Hz, Setting resolution: 0.01Hz / 0.1Hz		
	Accuracy	± 0.01% of set		
	Stability[*10]	± 0.005%		
Output on phase setting range[*11]	0.0° to 359.9° variable (Free / Fix selectable), 0.1° (1Hz to 500Hz), 1° (500Hz to 1000Hz)			
Output off phase setting range[*11]	0.0° to 359.9° variable (Free / Fix selectable), 0.1° (1Hz to 500Hz), 1° (500Hz to 1000Hz)			
Setting range of the phase angle[*12]	---	3P4W: L2 phase: 0° to 359.9° L3 phase: 0° to 359.9° Setting Resolution: 0.1°	---	3P4W: L2 phase: 0° to 359.9° L3 phase: 0° to 359.9° Setting Resolution: 0.1°
Phase angle accuracy[*13]		45Hz to 65Hz: ±1.0° 15Hz to 1000Hz: ±2.0°	---	45Hz to 65Hz: ±1.0° 15Hz to 1000Hz: ±2.0°
DC offset[*14]	± 20mV (typ.)			

Model		ASR902-351RK	ASR123-351RK
DC output (only single-phase output)			
Output capacity		9kW	12kW
Mode		Floating output, the N terminal can be grounded	
Voltage	Setting Range	-250.0V to +250.0V / -500.0V to +500.0V, Setting Resolution: 0.01V / 0.1V	
	Accuracy*15	± (|0.3% of set| + 0.3V / 0.6V)	
Maximum current*16		90A / 45A	120A / 60A
Maximum peak current*17		Four times of the maximum current	

Model	ASR902-351RK	ASR123-351RK
Output Stability, Total Harmonic Distortion, Output voltage rising time and Ripple noise		
Line regulation	±0.1% or less (Phase voltage)	
Load regulation*18	±0.5V / ±1.0V (phase voltage, 0 to 100%, via output terminal)	
Distortion of Output*19	<0.3%@1Hz~100Hz, <0.5%@100.1Hz~500Hz, <1%@500.1Hz~1000Hz	
Output voltage response time*20	Middle: 100μs(typ.) Slow: 300μs(typ.)	
Ripple noise*21	0.5Vrms / 1Vrms(typ.)	

※1.Y connection is three-phase, five-wire, Delta connection is three-phase, four-wire. (Accessories will be provided)

※2.In the case of AC-INT mode, the rate output voltage, resistance load at maximum output current, 45Hz to 65Hz and sine wave output only.

※3.Can be only set in 3P4W mode.

※4.For phase voltage setting in polyphase output. In balance mode all phase are collectively set and in unbalance mode each phases are individually set.

※5.For an output voltage of 10V to 175V / 20V to 350V, sine wave, an output frequency of 45Hz to 65Hz, no load, DC voltage setting 0V (AC+DC mode) and 23°C ± 5°C. For phase voltage setting in the polyphase output.

※6.Line voltage only can be set in balance mode.

※7.If the output voltage is higher than rated value, this is limited to satisfy the power capacity. If there is the DC superimposition, the active current of AC+DC satisfies the maximum current. In the case of 40Hz or lower or 400Hz or higher, and that the ambient temperature is 40 degree or higher, the maximum current may decrease.

※8.With respect to the capacitor-input rectifying load. Limited by the maximum current.

※9.External power injection or regeneration which is over short reverse power flow capacity is not available.

※10.*For 45Hz to 65Hz, the rated output voltage, no load and the resistance load for the maximum current, and the operating temperature range.

※11.L1, L2 and L3 phase can be set independ at independ mode in the polyphase output.

※12.Can be set only with independ mode in polyphase output.

※13.For an output voltage of 50V or higher, sine wave, same load and voltage condition for all phase.

※14.In the case of the AC mode and output voltage setting to 0V, 23°C ± 5°C

※15.For an output voltage of -250V to -10V, +10V to +250V / -500V to -20V, +20V to +500V, no load, AC voltage set to 0V (AC+DC mode) and 23°C ± 5°C

※16.If the output voltage is higher than rated value, this is limited to satisfy the power capacity. If there is the AC superimposition, the active current of AC+DC satisfies the maximum current. And the ambient temperature is 40 degree or higher, the maximum current may decrease.

※17.Instantaneous within 3 ms, limited by the maximum current at rated output voltage.

※18.For an output voltage of 75V to 175V / 150V to 350V, a load power factor of 1, stepwise change from an output current of 0A to maximum current (or its reverse), using the output terminal on the rear panel.

※19.50 % or higher of the rated output voltage, the maximum current or lower, AC and AC+DC modes, THD+N. For the polyphase output, it is a specification for phase voltage setting.

※20.For an output voltage of 100V / 200V, a load power factor of 1, with respect to stepwise change from an output current of 0A to the maximum current (or its reverse). 10% ~ 90% of output voltage.

※21.For 5Hz to 1MHz components in DC mode using the output terminal on the rear panel.

Measured value display (All accuracy of the measurement function is indicated for 23 °C±5 °C.)				
			Single-phase output	Polyphase output[*6]
Voltage[*1*2]	Resolution		0.01V / 0.1V	
	RMS value accuracy		45Hz to 65Hz and DC: ± (0.5% of rdg + 0.5V / 1V) 15Hz to 1000Hz: ± (0.7% of rdg + 1V / 2V)	45Hz to 65Hz: ± (0.5 % of rdg + 0.5V / 1V) 15Hz to 1000Hz: ± (0.7% of rdg + 1V / 2V)
	AVG value accuracy		DC: ± (|0.5% of rdg| + 0.5V / 1V)	DC: ± (|0.5% of rdg| + 0.5V / 1V)
	PEAK value accuracy[*3]		45Hz to 65Hz and DC: ± (|2% of rdg| + 1V / 2V)	45Hz to 65Hz: ± (|2% of rdg| + 1V / 2V)
Curren[t*4]	Resolution		0.01A / 0.1A	
	RMS value accuracy		45Hz to 65Hz and DC: ± (0.5% of rdg + 0.2A / 0.1A) 15Hz to 1000Hz: ± (0.7% of rdg + 0.4A / 0.2A)	45Hz to 65Hz: ± (0.5% of rdg + 0.1A / 0.05A) 15Hz to 1000Hz: ± (0.7% of rdg + 0.2A / 0.1A)
	AVG value accuracy		DC: ± (|0.5% of rdg| + 0.4A / 0.2A)	DC: ± (|0.5% of rdg| + 0.2A / 0.1A)
	PEAK value accuracy[*5]		45Hz to 65Hz and DC: ± (|2% of rdg| + 2A / 1A)	45Hz to 65Hz: ± (|2% of rdg| + 1A / 0.5A)
Power[*7*8]	Active (W)	Resolution	0.1W / 1W / 10W	
		Accuracy[*9]	±(2% of rdg+6W)	±(2% of rdg+2W)
	Apparent (VA)	Resolution	0.1VA / 1VA / 10VA	
		Accuracy	±(2% of rdg+9VA)	±(2% of rdg+3VA)
	Reactive (VAR)	Resolution	0.1VAR / 1VAR / 10VAR	
		Accuracy[*10]	±(2% of rdg+9VAR)	±(2% of rdg+3VAR)
Power factor	Range		0.000~1.000	
	Resolution		0.001	

Harmonic voltage Effective value (rms) Percent (%) (AC-INT and 50 / 60 Hz only) *11	Range	Up to 100th order of the fundamental wave	
	Full Scale	200V / 400V, 100%	
	Resolution	0.01V / 0.1V, 0.1%	
	Accuracy*12	Up to 20th: ± (0.2% of rdg + 0.5V / 1V) 21th to 100th: ± (0.3% of rdg + 0.5V / 1V)	
Harmonic current Effective value (rms) Percent (%) (AC-INT and 50 / 60 Hz only) *11	Range	Up to 100th order of the fundamental wave	
	Full Scale	126A / 63A, 100%	126A / 63A, 100%
	Resolution	0.01 A / 0.1 A, 0.1%	
	Accuracy*13	Up to 20th: ± (1% of rdg + 3A / 1.5A) 21th to 100th: ± (1.5% of rdg + 3A / 1.5A)	Up to 20th: ± (1% of rdg + 1A / 0.5A) 21th to 100th: ± (1.5% of rdg + 1A / 0.5A)

※1.In the polyphase output, the specification is for phase voltage, and the DC average value display cannot be selected.

※2.Accuracy values are in the case that the output voltage is within voltage setting range.

※3.The accuracy is for output waveform DC or sine wave only.

※4.Accuracy values are in the case that the output current is 5% to 100% of the maximum current.

※5.The accuracy is for output waveform DC or sine wave only.

※6.In the polyphase output, these are the specifications for each phase.

※7.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 45Hz to 65Hz.

※8.The apparent and reactive powers are not displayed in the DC mode.

※9.For the load with the power factor 0.5 or higher.

※10.For the load with the power factor 0.5 or lower.

※11.The measurement does not conform to the IEC or other standard. Phase Voltage and Phase Current.

※12.For an output voltage of 10V to 175V / 20V to 350V.

※13.An output current in the range of 5% to 100% of the maximum current.

Model Others	ASR902-351RK	ASR123-351RK
Protections	UVP, OVP, OCP, OTP, OPP, Fan Fail, Peak and RMS Current Limit	
Parallel	Not supported	
Display	TFT-LCD, 7 inches	
Memory function	Store and recall settings, Basic settings: 10	
Arbitrary Wave	Number of memories	253 (nonvolatile)
	Waveform length	4096 words
	Amplitude resolution	16 its

3-5-2.General Specifications - ASR902-351RK / ASR123-351RK

Model			ASR902-351RK ASR123-351RK
Interface	Standard	USB	Type A: Host, Type B: Slave, Speed: 2.0, USB-CDC / USB-TMC
		LAN	MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask
		External	External Signal Input External Control I/O V/I Monitor Output
		RS-232C	Complies with the EIA-RS-232 specifications
	Optional 1	GPIB	SCPI-1993, IEEE 488.2 compliant interface
Insulation resistance	Between input and chassis, output and chassis, input and output		DC 500V, 30MΩ or more
Withstand voltage	Between input and chassis, output and chassis, input and output		AC 1500V or DC 2130V, 1 minute

EMC		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/-4-4/-4-5/-4-6/-4-8/-4-11 (Class A, Group 1) EN 55011 (Class A, Group1)
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%rh to 80% RH (no condensation)
	Storage humidity range	90% RH or less (no condensation)
	Altitude	Up to 2000m
Dimensions (mm)		598(W)×937(H)×906(D) (not including protrusions)
Weight		Approx. 155kg

- A value with the accuracy is the guaranteed value of the specification. However, an accuracy noted as reference value shows the supplemental data for reference when the product is used, and is not under the guarantee. A value without the accuracy is the nominal value or representative value (shown as typ.).
- Product specifications are subject to change without notice.

3-5-3.Electrical specifications -ASR133-351RK / ASR183-351RK

Model	ASR902-351RK	ASR123-351RK
Input ratings		
Power type	Three-phase, Delta or Y connection	
Voltage range[*1]	Three-phase, Delta：200V～240V±10% or Three-phase, Y connection：380V~460V±10%	Factory specified
Frequency range	47Hz to 63Hz	
Power factor[*2]	0.95 or higher (typ.)	

Efficiency[*2]	80% or higher				
Maximum power consumption	18kVA or lower		24kVA or lower		
Model AC output	ASR133-351RK		ASR183-351RK		
Multi-phase output	Single-phase output	Polyphase output	Single-phase output	Polyphase output	
Output capacity	13.5kVA	1P3W: 9kVA 3P4W: 13.5kVA	18kVA	1P3W: 12kVA 3P4W: 18kVA	
Mode	1P2W	1P3W 3P4W (Y-connection)	1P2W	1P3W 3P4W (Y-connection)	
Setting mode[*3]	---	Unbalance, Balanced	---	Unbalance, Balanced	
Phase voltage	Setting Range[*4]	0.00V to 175.0V / 0.0V to 350.0V (sine and square wave), Setting Resolution: 0.01V / 0.1V			
		0.00Vpp to 500.0Vpp / 0.00Vpp to 1000Vpp (triangle and arbitrary wave), Setting Resolution: 0.01Vpp / 0.1Vpp / 1Vpp			
	Accuracy[*5]	±(0.3% of set + 0.5V / 1V)			
Line voltage setting range[*6]			1P3W: 0.00V to 350.0V / 0.00V to 700.0V 3P4W: 0.00V to 303.1V / 0.00V to 606.2V (sine wave only) Setting Resolution: 0.01V / 0.1V	1P3W: 0.00V to 350.0V / 0.00V to 700.0V 3P4W: 0.00V to 303.1V / 0.00V to 606.2V (sine wave only) Setting Resolution: 0.01V / 0.1V	
Maximum current[*7]	135A / 67.5A	45A / 22.5A	180A / 90A	60A / 30A	
Maximum peak current[*8]	Four times of the maximum RMS current				

Load power factor[*9]		0 to 1 (leading phase or lagging phase, 45Hz to 65Hz)		
Frequency	Setting range	AC Mode: 15.00Hz to 1000.0Hz, AC+DC Mode: 1.00Hz to 1000.0Hz, Setting resolution: 0.01Hz / 0.1Hz		
	Accuracy	± 0.01% of set		
	Stability[*10]	± 0.005%		
Output on phase setting range[*11]		0.0° to 359.9° variable (Free / Fix selectable), 0.1° (1Hz to 500Hz), 1° (500Hz to 1000Hz)		
Output off phase setting range[*11]		0.0° to 359.9° variable (Free / Fix selectable), 0.1° (1Hz to 500Hz), 1° (500Hz to 1000Hz)		
Setting range of the phase angle[*12]		---	3P4W: L2 phase: 0° to 359.9° L3 phase: 0° to 359.9° Setting Resolution: 0.1°	---	3P4W: L2 phase: 0° to 359.9° L3 phase: 0° to 359.9° Setting Resolution: 0.1°
Phase angle accuracy[*13]			45Hz to 65Hz: ±1.0° 15Hz to 1000Hz: ±2.0°	---	45Hz to 65Hz: ±1.0° 15Hz to 1000Hz: ±2.0°
DC offset[*14]		± 20mV (typ.)		

Model		ASR133-351RK	ASR183-351RK
DC output (only single-phase output)			
Output capacity		13.5kW	18kW
Mode		Floating output, the N terminal can be grounded	
Voltage	Setting Range	-250.0V to +250.0V / -500.0V to +500.0V, Setting Resolution: 0.01V / 0.1V	
	Accuracy[*15]	± (|0.3% of set| + 0.3V / 0.6V)	
Maximum current[*16]		135A / 67.5A	180A / 90A
Maximum peak current[*17]		Four times of the maximum current	

Model	ASR133-351RK	ASR183-351RK
Output Stability, Total Harmonic Distortion, Output voltage rising time and Ripple noise		
Line regulation	±0.1% or less (Phase voltage)	
Load regulation*18	±0.5V / ±1.0V (phase voltage, 0 to 100%, via output terminal)	
Load regulation*19	<0.3%@1Hz~100Hz, <0.5%@100.1Hz~500Hz, <1%@500.1Hz~1000Hz	
Output voltage response time*20	Middle: 100μs(typ.) Slow: 300μs(typ.)	
Ripple noise*21	0.5Vrms / 1Vrms(typ.)	

※1.Y connection is three-phase, five-wire, Delta connection is three-phase, four-wire. (Accessories will be provided)

※2.In the case of AC-INT mode, the rate output voltage, resistance load at maximum output current, 45Hz to 65Hz and sine wave output only.

※3.Can be only set in 3P4W mode.

※4.For phase voltage setting in polyphase output. In balance mode all phase are collectively set and in unbalance mode each phases are individually set.

※5.For an output voltage of 10V to 175V / 20V to 350V, sine wave, an output frequency of 45Hz to 65Hz, no load, DC voltage setting 0V (AC+DC mode) and 23°C ± 5°C. For phase voltage setting in the polyphase output.

※6.Line voltage only can be set in balance mode.

※7.If the output voltage is higher than rated value, this is limited to satisfy the power capacity. If there is the DC superimposition, the active current of AC+DC satisfies the maximum current. In the case of 40Hz or lower or 400Hz or higher, and that the ambient temperature is 40 degree or higher, the maximum current may decrease.

※8.With respect to the capacitor-input rectifying load. Limited by the maximum current.

※9.External power injection or regeneration which is over short reverse power flow capacity is not available.

※10.For 45Hz to 65Hz, the rated output voltage, no load and the resistance load for the maximum current, and the operating temperature range.

※11.L1, L2 and L3 phase can be set independ at independ mode in the polyphase output.

※12.Can be set only with independ mode in polyphase output.

※13.For an output voltage of 50V or higher, sine wave, same load and voltage condition for all phase.

※14.In the case of the AC mode and output voltage setting to 0 V, 23°C ± 5°C

※15.For an output voltage of -250V to -10V, +10V to +250V / -500V to -20V, +20V to

+500V, no load, AC voltage set to 0V (AC+DC mode) and 23°C ± 5°C

※16.If the output voltage is higher than rated value, this is limited to satisfy the power capacity. If there is the AC superimposition, the active current of AC+DC satisfies the maximum current. And the ambient temperature is 40 degree or higher, the maximum current may decrease.

※17.Instantaneous within 3 ms, limited by the maximum current at rated output voltage.

※18.For an output voltage of 75V to 175V / 150V to 350V, a load power factor of 1, stepwise change from an output current of 0A to maximum current (or its reverse), using the output terminal on the rear panel.

※19.50 % or higher of the rated output voltage, the maximum current or lower, AC and AC+DC modes, THD+N. For the polyphase output, it is a specification for phase voltage setting.

※20.For an output voltage of 100V / 200V, a load power factor of 1, with respect to stepwise change from an output current of 0A to the maximum current (or its reverse). 10% ~ 90% of output voltage.

※21.For 5Hz to 1MHz components in DC mode using the output terminal on the rear panel.

Measured value display (All accuracy of the measurement function is indicated for 23 °C±5 °C.)			
		Single-phase output	Polyphase output[*6]
Voltage[*1*2]	Resolution	0.01V / 0.1V	
	RMS value accuracy	45Hz to 65Hz and DC: ± (0.5% of rdg + 0.5V / 1V) 15Hz to 1000Hz: ± (0.7% of rdg + 1V / 2V)	45Hz to 65Hz: ± (0.5% of rdg + 0.5V / 1V) 15Hz to 1000Hz: ± (0.7% of rdg + 1V / 2V)
	AVG value accuracy	DC: ± (|0.5 % of rdg| + 0.5V / 1V)	DC: ± (|0.5% of rdg| + 0.5V / 1V)
	PEAK value accuracy[*3]	45Hz to 65Hz and DC: ± (|2% of rdg| + 1V / 2V)	45Hz to 65Hz: ± (|2% of rdg| + 1V / 2V)
Current[*4]	Resolution	0.01A / 0.1A	
	RMS value accuracy	45Hz to 65Hz and DC:	45Hz to 65Hz: ± (0.5%

			± (0.5% of rdg + 0.3A / 0.15A) 15Hz to 1000Hz: ± (0.7% of rdg + 0.6A / 0.4A)	of rdg + 0.15A / 0.08A) 15Hz to 1000Hz: ± (0.7% of rdg + 0.3A / 0.15A)
	AVG value accuracy		DC: ± (|0.5% of rdg| + 0.6A / 0.4A)	DC: ± (|0.5% of rdg| + 0.3A / 0.15A)
	PEAK value accuracy*5		45Hz to 65Hz and DC: ± (|2% of rdg| + 3A / 1.5A)	45Hz to 65Hz: ± (|2% of rdg| + 1.5A / 0.75A)
Power*7*8	Active (W)	Resolution	0.1W / 1W / 10W	
		Accuracy*9	±(2% of rdg+6W)	±(2% of rdg+2W)
	Apparent (VA)	Resolution	0.1VA / 1VA / 10VA	
		Accuracy	±(2% of rdg+9VA)	±(2% of rdg+3VA)
	Reactive (VAR)	Resolution	0.1VAR / 1VAR / 10VAR	
		Accuracy*10	±(2% of rdg+9VAR)	±(2% of rdg+3VAR)
Power factor	Range		0.000~1.000	
	Resolution		0.001	
Harmonic voltage Effective value (rms) Percent (%) (AC-INT and 50 / 60 Hz only) *11	Range		Up to 100th order of the fundamental wave	
	Full Scale		200V / 400V, 100%	
	Resolution		0.01V / 0.1V, 0.1%	
	Accuracy*12		Up to 20th: ± (0.2% of rdg + 0.5V / 1V) 21th to 100th: ± (0.3% of rdg + 0.5V / 1V)	
Harmonic current Effective value (rms) Percent (%) (AC-INT and 50 / 60 Hz only) *11	Range		Up to 100th order of the fundamental wave	
	Full Scale		189A / 94.5A, 100%	63A / 31.5A, 100%
	Resolution		0.01A / 0.1A, 0.1%	
	Accuracy*13		Up to 20th: ± (1% of rdg + 3A / 1.5A) 21th to 100th: ± (1.5% of rdg + 3A / 1.5A)	Up to 20th: ± (1% of rdg + 1A / 0.5A) 21th to 100th: ± (1.5% of rdg + 1A / 0.5A)

※1.In the polyphase output, the specification is for phase voltage, and the DC average value display cannot be selected.

※2.Accuracy values are in the case that the output voltage is within voltage setting range.

※3.The accuracy is for output waveform DC or sine wave only.

※4.Accuracy values are in the case that the output current is 5% to 100% of the maximum current.

※5.The accuracy is for output waveform DC or sine wave only.

※6.In the polyphase output, these are the specifications for each phase.

※7.For an output voltage of 50V or greater, an output current in the range of 10% to 100 % of the maximum current, DC or an output frequency of 45Hz to 65Hz.

※8.The apparent and reactive powers are not displayed in the DC mode.

※9.For the load with the power factor 0.5 or higher.

※10.For the load with the power factor 0.5 or lower.

※11.The measurement does not conform to the IEC or other standard. Phase Voltage and Phase Current.

※12.For an output voltage of 10V to 175V / 20V to 350V.

※13.An output current in the range of 5% to 100% of the maximum current.

Model Others	ASR133-351RK	ASR183-351RK
Protections	UVP, OVP, OCP, OTP, OPP, Fan Fail, Peak and RMS Current Limit	
Parallel	Not supported	
Display	TFT-LCD, 7 inches	
Memory function	Store and recall settings, Basic settings: 10	
Arbitrary Wave	Number of memories	253 (nonvolatile)
	Waveform length	4096 words
	Amplitude resolution	16 bits

3-5-4.General Specifications - ASR133-351RK / ASR183-351RK

Model			ASR902-351RK ASR123-351RK
Interface	Standard	USB	Type A: Host, Type B: Slave, Speed: 2.0, USB-CDC / USB-TMC
		LAN	MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask
		External	External Signal Input External Control I/O V/I Monitor Output
		RS-232C	Complies with the EIA-RS-232 specifications
	Optional 1	GPIB	SCPI-1993, IEEE 488.2 compliant interface
Insulation resistance	Between input and chassis, output and chassis, input and output		DC 500V, 30MΩ or more
Withstand voltage	Between input and chassis, output and chassis, input and output		AC 1500V or DC 2130V, 1 minute
EMC			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/-4-4/-4-5/-4-6/-4-8/-4-11 (Class A, Group 1) EN 55011 (Class A, Group1)
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%rh to 80% RH (no condensation)

	Storage humidity range	90% RH or less (no condensation)
	Altitude	Up to 2000m
Dimensions (mm)		598(W)×1116(H)×906(D) (not including protrusions)
Weight		Approx. 200kg

- A value with the accuracy is the guaranteed value of the specification. However, an accuracy noted as reference value shows the supplemental data for reference when the product is used, and is not under the guarantee. A value without the accuracy is the nominal value or representative value (shown as typ.).
- Product specifications are subject to change without notice.

3-5-5.Electrical specifications -ASR243-351RK

Model Input ratings	ASR243-351RK	
Power type	Three-phase, Delta or Y connection	
Voltage range[*1]	Three-phase, Delta：200V～240V±10% or Three-phase, Y connection：380V~460V±10%	Factory specified
Frequency range	47Hz to 63Hz	
Power factor[*2]	0.95 or higher (typ.)	
Efficiency[*2]	80% or higher	
Maximum power consumption	32kVA or lower	

Model AC output		ASR243-351RK	
Multi-phase output		Single-phase output	Polyphase output
Output capacity		24kVA	1P3W: 16kVA 3P4W: 24kVA
Mode		1P2W	1P3W 3P4W (Y-connection)
Setting mode[*3]		---	Unbalance, Balance
Phase voltage	Setting Range[*4]	0.00V to 175.0V / 0.0V to 350.0V (sine and square wave), Setting Resolution: 0.01V / 0.1V	
		0.00Vpp to 500.0Vpp / 0.00Vpp to 1000Vpp (triangle and arbitrary wave), Setting Resolution: 0.01Vpp / 0.1Vpp / 1Vpp	
	Accuracy[*5]	±(0.3% of set+0.5V / 1V)	
Line voltage setting		---	1P3W: 0.00V to 350.0V / 0.00

range[*6]			V to 700.0 V 3P4W: 0.00V to 303.1V / 0.00V to 606.2V (sine wave only) Setting Resolution: 0.01V / 0.1V
		---	設定分解能: 0.01V / 0.1V
Maximum current[*7]		240A / 120A	80A / 40A
Maximum peak current[*8]		Four times of the maximum RMS current	
Load power factor[*9]		0 to 1 (leading phase or lagging phase, 45Hz to 65Hz)	
Frequency	Setting range	AC Mode: 15.00Hz to 550.0Hz, AC+DC Mode: 1.00Hz to 550.0Hz, Setting resolution: 0.01Hz / 0.1Hz	
	Accuracy	± 0.01% of set	
	Stability[*10]	± 0.005%	
Output on phase setting range[*11]		0.0° to 359.9° variable (Free / Fix selectable), 0.1° (1Hz to 500Hz), 1° (500Hz to 550Hz)	
Output off phase setting range[*11]		0.0° to 359.9° variable (Free / Fix selectable), 0.1° (1Hz to 500Hz), 1° (500Hz to 550Hz)	
Setting range of the phase angle[*12]		---	3P4W: L2 phase: 0° to 359.9° L3 phase: 0° to 359.9° Setting Resolution: 0.1°
Phase angle accuracy[*13]		---	45Hz to 65Hz: ±1.0° 15Hz to 550Hz: ±2.0°
DC offset[*14]		± 20mV (typ.)	
Model DC output (only single-phase output)		ASR243-351RK	
Output capacity		24kW	
Mode		Floating output, the N terminal can be grounded	
Voltage	Setting Range	-250.0V to +250.0V / -500.0V to +500.0V, Setting Resolution: 0.01V / 0.1V	
	Accuracy[*1]	±(|0.3% of set| + 0.3V / 0.6V)	

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Maximum current*16	240A / 140A
Maximum peak current*17	Four times of the maximum current

Model	ASR243-351RK
Output Stability, Total Harmonic Distortion, Output voltage rising time and Ripple noise	
Line regulation	±0.1% or less (Phase voltage)
Load regulation*18	±1 V / ±2V (phase voltage, 0 to 100%, via output terminal)
Distortion of Output*19	<0.3% @1Hz to 100Hz, <0.5% @100.1Hz to 550Hz
Output voltage response time*20	Middle: 100μs(typ.) Slow: 300μs(typ.)
Ripple noise*21	0.5Vrms / 1Vrms(typ.)

※1.Y connection is three-phase, five-wire, Delta connection is three-phase, four-wire. (Accessories will be provided)

※2.In the case of AC-INT mode, the rate output voltage, resistance load at maximum output current, 45Hz to 65Hz and sine wave output only.

※3.Can be only set in 3P4W mode.

※4.For phase voltage setting in polyphase output. In balance mode all phase are collectively set and in unbalance mode each phases are individually set.

※5.For an output voltage of 10V to 175V / 20V to 350 , sine wave, an output frequency of 45Hz to 65Hz, no load, DC voltage setting 0V (AC+DC mode) and 23°C ± 5°C. For phase voltage setting in the polyphase output.

※6.Line voltage only can be set in balance mode.

※7.If the output voltage is higher than rated value, this is limited to satisfy the power capacity. If there is the DC superimposition, the active current of AC+DC satisfies the maximum current. In the case of 40Hz or lower or 400Hz or higher, and that the ambient temperature is 40 degree or higher, the maximum current may decrease.

※8.With respect to the capacitor-input rectifying load. Limited by the maximum current.

※9.External power injection or regeneration which is over short reverse power flow capacity is not available.

※10.*For 45Hz to 65Hz, the rated output voltage, no load and the resistance load for the maximum current, and the operating temperature range.

※11.L1, L2 and L3 phase can be set independ at independ mode in the polyphase output.

※12.Can be set only with independ mode in polyphase output.

※13.For an output voltage of 50V or higher, sine wave, same load and voltage condition for all phase.

※14.In the case of the AC mode and output voltage setting to 0 V, 23°C ± 5°C

※15.For an output voltage of -250V to -10V, +10V to +250V / -500V to -20V, +20V to +500V, no load, AC voltage set to 0V (AC+DC mode) and 23°C ± 5°C

※16.If the output voltage is higher than rated value, this is limited to satisfy the power capacity. If there is the AC superimposition, the active current of AC+DC satisfies the maximum current. And the ambient temperature is 40 degree or higher, the maximum current may decrease.

※17.Instantaneous within 3ms, limited by the maximum current at rated output voltage.

※18.For an output voltage of 75V to 175V / 150V to 350V, a load power factor of 1, stepwise change from an output current of 0A to maximum current (or its reverse), using the output terminal on the rear panel.

※19.50% or higher of the rated output voltage, the maximum current or lower, AC and AC+DC modes, THD+N. For the polyphase output, it is a specification for phase voltage setting.

※20.For an output voltage of 100V / 200V, a load power factor of 1, with respect to stepwise change from an output current of 0A to the maximum current (or its reverse). 10% ~ 90% of output voltage.

※21.For 5Hz to 1MHz components in DC mode using the output terminal on the rear panel.

Measured value display (All accuracy of the measurement function is indicated for 23 °C±5 °C.)			
		Single-phase output	Polyphase output[*6]
Voltage[*1*2]	Resolution	0.01V / 0.1V	
	RMS value accuracy	45Hz to 65Hz and DC: ± (0.5% of rdg + 0.5V / 1V) 15Hz to 550Hz: ± (0.7% of rdg + 1V / 2V)	45Hz to65 Hz: ± (0.5% of rdg + 0.5V / 1V) 15Hz to 550Hz: ± (0.7% of rdg + 1V / 2V)
	AVG value accuracy	DC: ± (|0.5% of rdg| + 0.5V / 1V)	DC: ± (|0.5% of rdg| + 0.5V / 1V)
	PEAK value accuracy[*3]	45Hz to 65Hz and DC: ± (|2% of rdg| + 1V / 2V)	45Hz to 65Hz: ± (|2% of rdg| + 1V / 2V)
Current[*4]	Resolution	0.01A / 0.1A	

	RMS value accuracy		45Hz to 65Hz and DC: ± (0.5% of rdg + 0.3A / 0.15A) 15Hz to 550Hz: ± (0.7% of rdg + 0.6A / 0.4A)	45Hz to 65Hz: ± (0.5% of rdg + 0.15A / 0.08A) 15Hz to 550Hz: ± (0.7% of rdg + 0.3A / 0.15A)
	AVG value accuracy		DC: ± (|0.5% of rdg| + 0.6A / 0.4A)	DC: ± (|0.5% of rdg| + 0.3A / 0.15A)
	PEAK value accuracy*5		45Hz to 65Hz and DC: ± (|2% of rdg| + 3A / 1.5A)	45Hz to 65Hz: ± (|2% of rdg| + 1.5A / 0.75A)
Power*7*8	Active (W)	Resolution	0.1W / 1W / 1 0W	
		Accuracy*9	± (2% of rdg + 9W)	± (2% of rdg + 3W)
	Apparent (VA)	Resolution	0.1VA / 1VA / 10VA	
		Accuracy	± (2% of rdg + 18VA)	± (2% of rdg + 6VA)
	Reactive (VAR)	Resolution	0.1VAR / 1VAR / 10VAR	
		Accuracy*10	± (2% of rdg + 18VAR)	± (2% of rdg + 6VAR)
Power factor	Range		0.000~1.000	
	Resolution		0.001	
Harmonic voltage Effective value (rms) Percent (%) (AC-INT and 50 / 60 Hz only) *11	Range		Up to 100th order of the fundamental wave	
	Full Scale		200V / 400V, 100%	
	Resolution		0.01V / 0.1V, 0.1%	
	Accuracy*12		Up to 20th: ± (0.2% of rdg + 0.5V / 1V) 21th to 100th: ± (0.3% of rdg + 0.5V / 1V)	
Harmonic current Effective value (rms) Percent (%) (AC-INT and 50 / 60 Hz only) *11	Range		Up to 100th order of the fundamental wave	
	Full Scale		252A / 126A, 100%	84A / 42A, 100%
	Resolution		0.01A / 0.1A, 0.1%	
	Accuracy*13		Up to 20th: ± (1% of rdg + 3A / 1.5A) 21th to 100th: ± (1.5% of rdg + 3A / 1.5A)	Up to 20th: ± (1% of rdg + 1A / 0.5A) 21th to 100th: ± (1.5% of rdg + 1A / 0.5A)

※1.In the polyphase output, the specification is for phase voltage, and the DC average value display cannot be selected.

※2.Accuracy values are in the case that the output voltage is within voltage setting range.

※3.The accuracy is for output waveform DC or sine wave only.

※4.Accuracy values are in the case that the output current is 5% to 100% of the maximum current.

※5.The accuracy is for output waveform DC or sine wave only.

※6.In the polyphase output, these are the specifications for each phase.

※7.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 45Hz to 65Hz.

※8.The apparent and reactive powers are not displayed in the DC mode.

※9.For the load with the power factor 0.5 or higher.

※10.For the load with the power factor 0.5 or lower.

※11.The measurement does not conform to the IEC or other standard. Phase Voltage and Phase Current.

※12.For an output voltage of 10V to 175V / 20V to 350V.

※13.An output current in the range of 5% to 100% of the maximum current.

Model Others	ASR243-351RK	
Protections	UVP, OVP, OCP, OTP, OPP, Fan Fail, Peak and RMS Current Limit	
Parallel	Not supported	
Display	TFT-LCD, 7 inches	
Memory function	Store and recall settings, Basic settings: 10	
Arbitrary Wave	Number of memories	253 (nonvolatile)
	Waveform length	4096 words
	Amplitude resolution	16 bits

3-5-6.General Specifications - ASR243-351RK

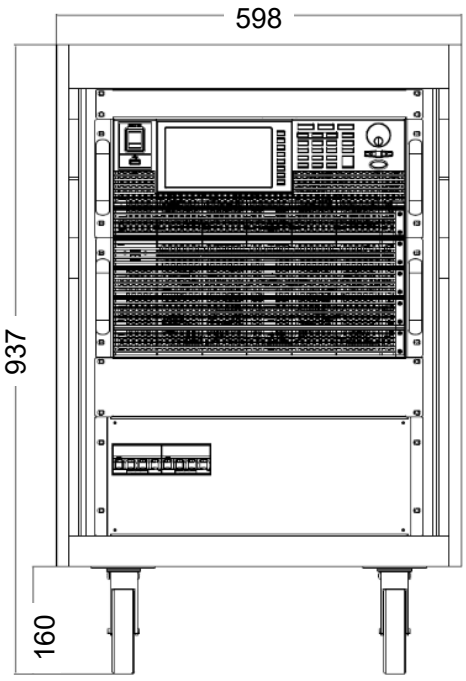
Model			ASR902-351RK ASR123-351RK
Interface	Standard	USB	Type A: Host, Type B: Slave, Speed: 2.0, USB-CDC / USB-TMC
		LAN	MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask
		External	External Signal Input External Control I/O V/I Monitor Output
		RS-232C	Complies with the EIA-RS-232 specifications
	Optional 1	GPIB	SCPI-1993, IEEE 488.2 compliant interface
Insulation resistance	Between input and chassis, output and chassis, input and output		DC 500V, 30MΩ or more
Withstand voltage	Between input and chassis, output and chassis, input and output		AC 1500V or DC 2130V, 1 minute
EMC			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/-4-4/-4-5/-4-6/-4-8/-4-11 (Class A, Group 1) EN 55011 (Class A, Group1)
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%rh to 80% RH (no condensation)
	Storage humidity range		90% RH or less (no condensation)
	Altitude		Up to 2000m
Dimensions (mm)			598(W)×1294(H)×906(D) (not including protrusions)
Weight			Approx. 250kg

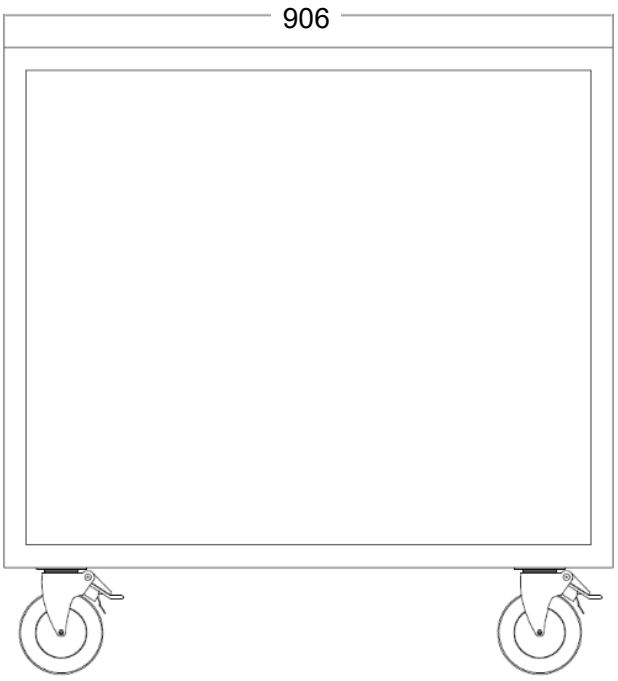
- A value with the accuracy is the guaranteed value of the specification. However, an accuracy noted as reference value shows the supplemental data for reference when the product is used, and is not under the guarantee. A value without the accuracy is the nominal value or representative value (shown as typ.).
- Product specifications are subject to change without notice.

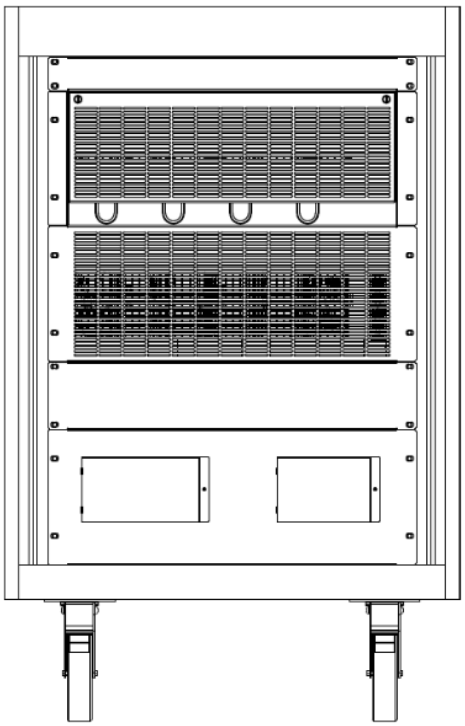
3-5-7.Dimensions

ASR902-351RK / ASR123-351RK

Scale=mm







ASR133-351RK / ASR183-351RK

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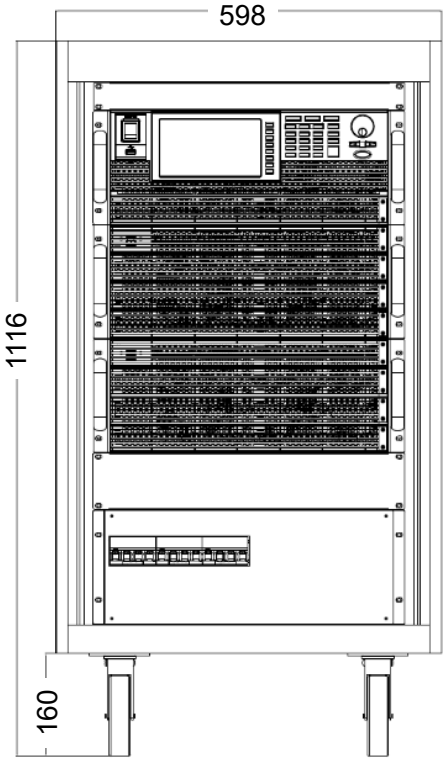

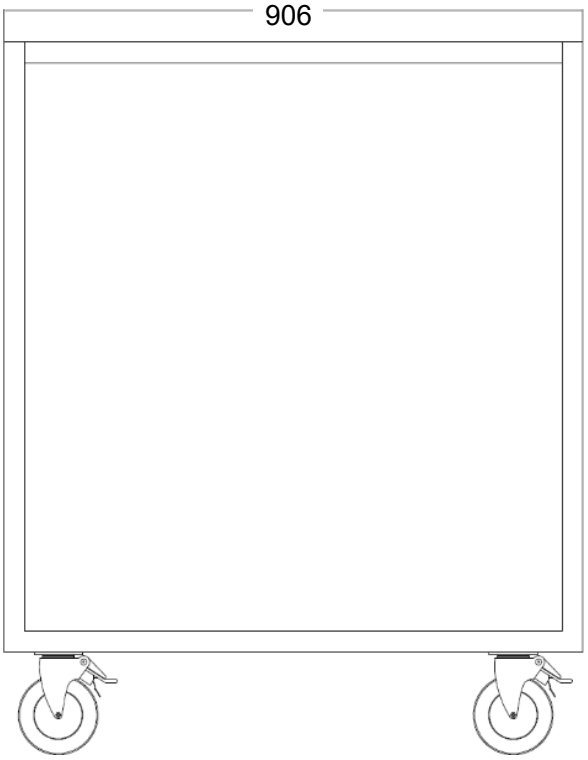

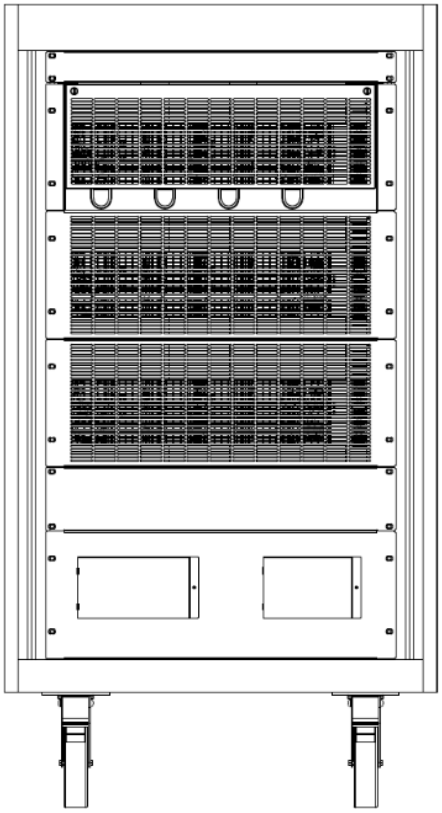

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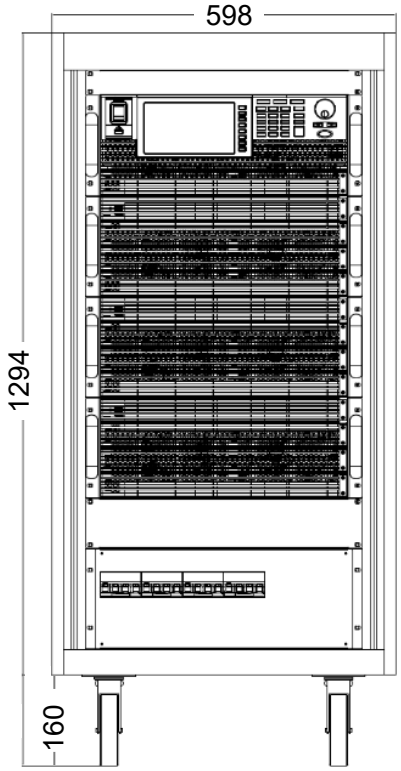

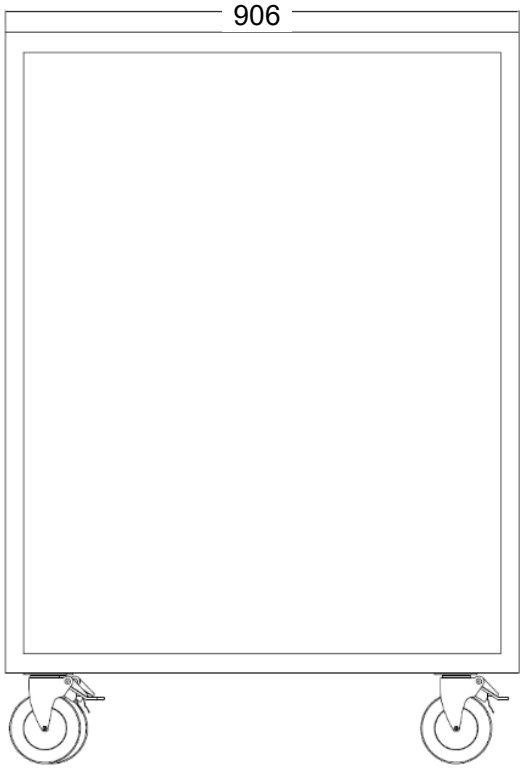

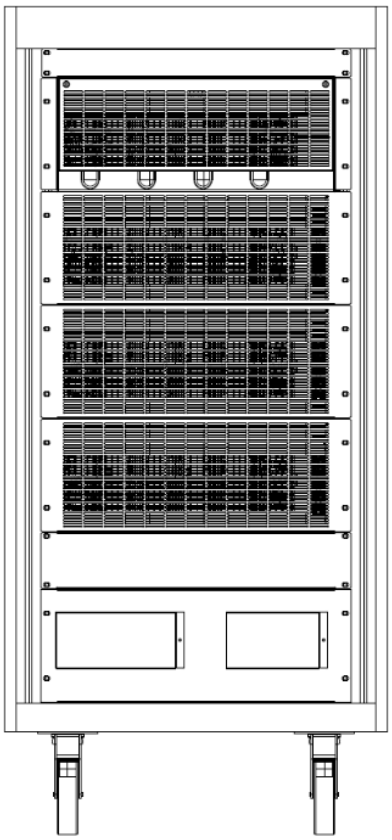

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