

# QUICK START GUIDE

## ASR-6000

ASR-6450/6500/6600/6660

EN



This quick start guide contains proprietary information, which is protected by copyright. All rights are reserved. No part of this quick start guide may be photocopied, reproduced or translated to another language without prior written consent.

The information in this quick start guide was correct at the time of printing. However we continue to improve our products and therefore reserve the right to change the specifications, equipment, and maintenance procedures at any time without notice.

# SAFETY INSTRUCTIONS

## Safety Symbols

These safety symbols may appear in the user manual or on the instrument.

---



Warning

Warning: Identifies conditions or practices that could result in injury or loss of life.



Caution

Caution: Identifies conditions or practices that could result in damage to the instrument or to other properties.



DANGER High Voltage



Attention Refer to the Manual



Protective Conductor Terminal



Do not dispose electronic equipment as unsorted municipal waste. Please use a separate collection facility or contact the supplier from which this instrument was purchased.

# GETTING STARTED

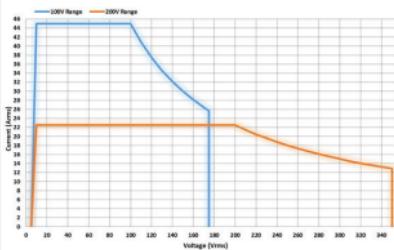
## Main Features

---

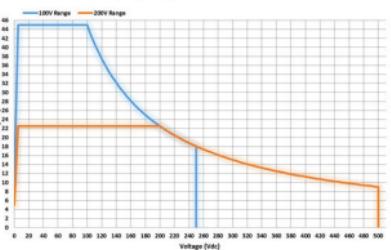
Performance	<ul style="list-style-type: none"><li>• Maximum phase voltage is 350 Vrms, line voltage is 700 Vrms</li><li>• Maximum DC output voltage is 1000 Vdc</li><li>• Maximum output frequency is 2000 Hz</li><li>• Adjustable Voltage rising time</li><li>• DC full capacity output ability</li><li>• Output voltage total harmonic distortion is less than 0.3% at 50 and 60 Hz</li><li>• Maximum crest factor reached 4 times</li></ul>
Features	<ul style="list-style-type: none"><li>• Include sine, square, triangle, arbitrary and DC output waveforms</li><li>• Variable voltage, frequency and current limiter</li><li>• 100 steps Harmonic voltage and current analysis ability</li><li>• Supported three phase unbalanced output mode</li><li>• Sequence, simulate and preset memory functions</li><li>• AC line frequency synchronized output</li><li>• USB memory save and recall</li><li>• Remote sense compensator</li><li>• Supported 1P, 1P3W and 3P output phase</li><li>• External control I/O and signal input applications</li><li>• Voltage and current monitor output</li><li>• Voltage control amplifier output</li><li>• PC software, web control and data log functions</li></ul>
Interface	<ul style="list-style-type: none"><li>• Built-in LAN, USB host, USB device and RS232 interface</li><li>• Optional GPIB, DeviceNet and CAN BUS interface</li></ul>

# Operating Area

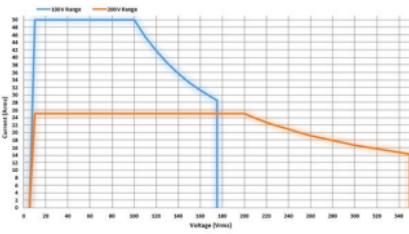
ASR-6450 AC Mode Output Operating Area



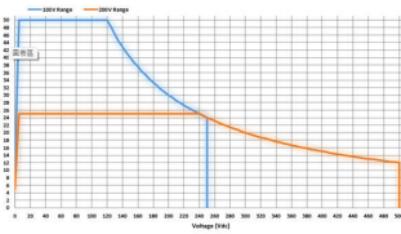
ASR-6450 DC Mode Output Operating Area



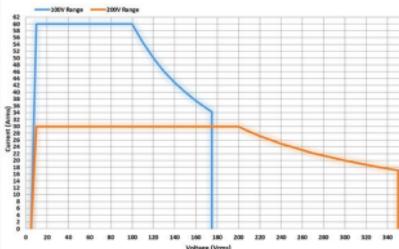
ASR-6550 AC Mode Output Operating Area



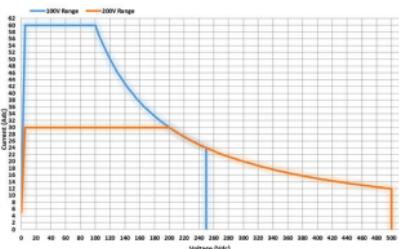
ASR-6550 DC Mode Output Operating Area



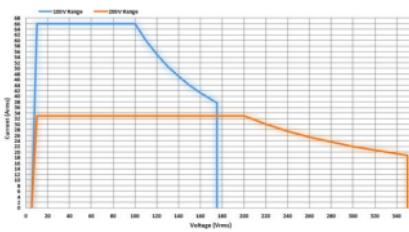
ASR-6600 AC Mode Output Operating Area



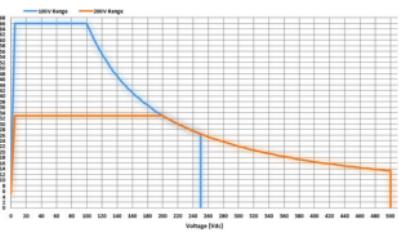
ASR-6600 DC Mode Output Operating Area



ASR-6660 AC Mode Output Operating Area

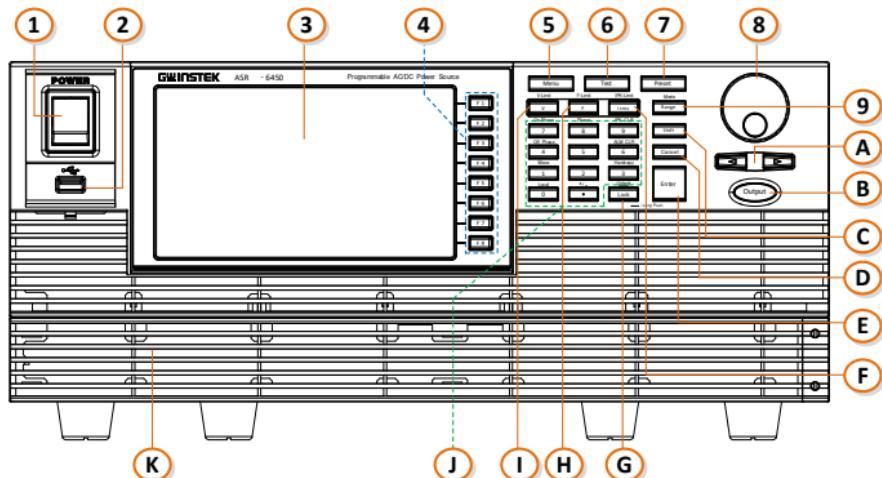


ASR-6660 DC Mode Output Operating Area



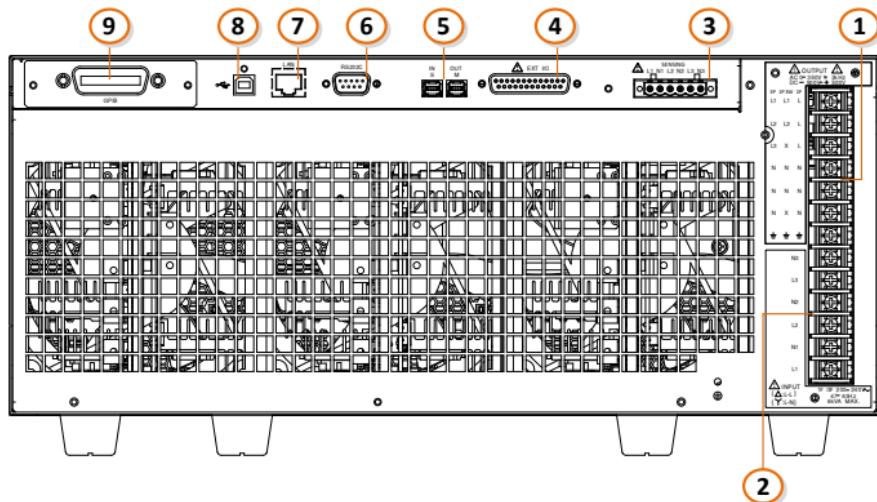
## Appearance

### Front Panel Overview



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 inlet

## Rear Panel Overview



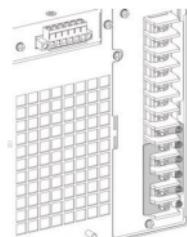
Description	
1. Output terminal	2. AC power input terminal
3. Remote sensing input terminal	4. External I/O connector
5. External IN/OUT connection in parallel function	6. RS232 connector
7. Ethernet (LAN) connector	8. USB interface connector (B Type)
9. Optional interface Slot <ul style="list-style-type: none"> <li>- GPIB card (ASR-003)</li> <li>- DeviceNet card (ASR-004)</li> <li>- CAN BUS card (ASR-005)</li> </ul>	

# SET UP

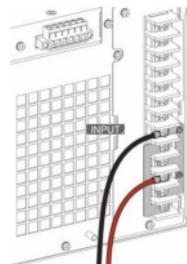
## Power Up

### Steps

1. Assemble the two copper plates specific for Single phase input connection with the AC input terminals. The first plate is for L1, L2 and L3 terminals, while the other plate is for N1, N2 and N3 terminals.



2. Connect the AC power cords to the AC input terminals.
  - o Red → Line (L)
  - o Black → Neutral (N)



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



### CAUTION

- 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.

## How to Use the Instrument

### Background

The ASR-6000 AC power supplies generally use the *scroll wheel*, *Arrow keys*, *Numerical Keypad* and *Enter* keys to edit numerical values or to select menu options.

Menu navigation is performed using the menu keys and function keys on the front panel.

The following section will explain some of these concepts in detail.

### Selecting Menu Items

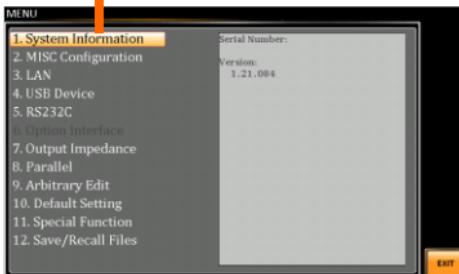
1. Turn the scroll wheel to select parameters in menus and lists. The selected parameter will be highlighted in orange. The scroll wheel is also used to increase/decrease setting values.
2. Press the *Enter* key to edit the parameter or to enter the selected menu.



### Example

The following is an example of the menu list that appears when the Menu key is pressed.

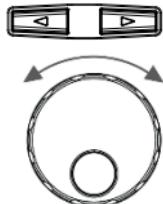
#### Selected parameter



Using the Arrow Keys and Scroll Wheel to Edit Parameter Values

Use the *Arrow* keys to select a digit power and then use the scroll wheel to edit the value by that power.

1. Use the *Arrow* keys to move the cursor to the digit of the desired value.
2. Turn the scroll wheel to edit the value by the resolution of the selected digit.



3. Repeat the steps above for all the relevant digits.
4. Press the *Enter* key to confirm the edit.



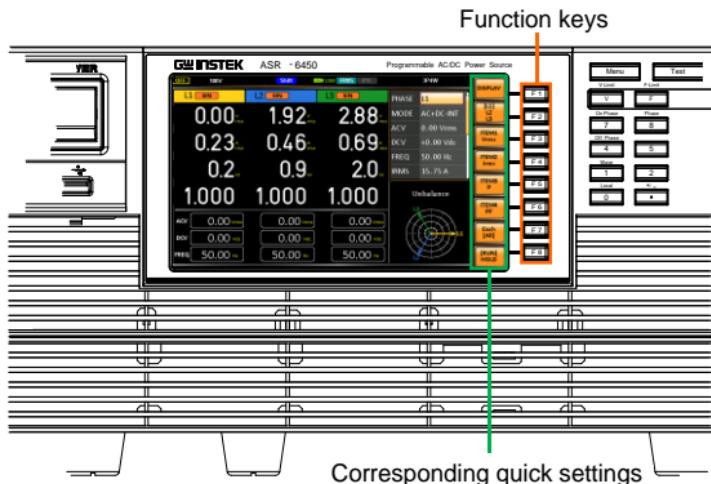
Note

By default the cursor starts at the lowest digit of value.

## Using the Function Keys

The function keys are quick settings keys, the function of which depends on the current menu or operation.

1. Press the *Function* key that corresponds to the setting directly to its left side.
2. The setting or parameter is immediately executed.

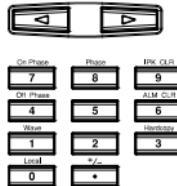


3. Repeat the steps above for all the relevant digits.

Using the Numerical Keypad to Edit Parameter Values

Use the *Arrow keys* to select a digit power and the *Numerical keypad* to define a power value.

1. Use the *Arrow keys* to move the cursor to the digit of the desired value.
2. Press the *Numerical keys* to input the value by the resolution of the selected digit.



3. Repeat the steps above for all the relevant digits.
4. Press the *Enter* key to confirm the edit.



Note

By default the cursor starts at the lowest digit of value.

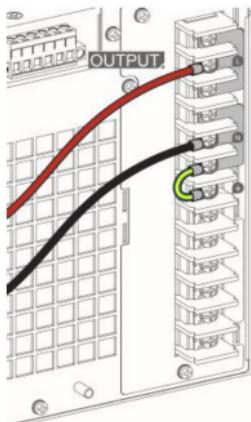
## Grounding for 1P2W Output

The output terminals of the ASR-6000 are isolated with respect to the protective grounding terminal. The insulation capacity of the load, the load cables and other connected devices must be taken into consideration when connected to the protective ground or when floating.

### Grounded Neutral Output

Basically, grounded return on the neutral output is allowed for ASR-6000 series and electric shock may occur if not following the grounding procedure based on the local electrical safety codes. In some cases, 0 V is specifically required between ground and neutral, which can substantially moderate ground loops, thus keeping sensitive equipment from effects of ground loops and reducing ground noise.

### Ground & Neutral Shortcut Illustration



### CAUTION

- Owning to the fact that the neutral has been shortcut with the ground which is referenced to the chassis ground, few electric shocks may still take place from time to time, for which we sincerely ask your additional attention.
- In case of damage to unit, grounding is available for 1P output only, whilst neither 1P3W output nor 3P output is available for grounding.

# S STATUS BAR



Indicates if the output is ON or OFF.



Indicates the output power percentage of pre output phase. When it is under 1P2W, the icon appears with 1 line (single phase). And it will be 2 lines (two phase) for 1P3W, and 3 lines (three phase) for 3P4W. The 1 line corresponding to 1P2W represents the full power of single phase, whereas the 2 lines corresponding to 1P3W or 3 lines corresponding to 3P4W stand for the maximum power of each phase.



Indicates that the rear panel USB is TMC or CDC type.



Indicates if the output range is 100V, 200V or AUTO.



The alarm icon will appear on the status bar when one of the protection functions is tripped.



Indicates the shift key is pressed which enables shortcut operations with each key.



Indicates that the ASR-6000 is under remotely control mode.

<b>SENS</b>	Indicates that the Remote Sensing function is active.
 <b>USB</b>	Indicates that a USB flash drive is detected and in normal connection.
 <b>USB</b>	Indicates that a USB flash drive is detected and in abnormal connection.
 <b>IRMS</b>	Indicates that the RMS current limit function is activated.
 <b>IPK</b>	Indicates that the peak current limit function is activated.
<b>MASTER</b>	Indicates that the power unit is set to Master under external parallel mode.
<b>3P4W</b>	Indicates that the output phase is 1P2W, 1P3W or 3P4W status.
 <b>LAN</b>	Indicates that the LAN interface is activated.
 <b></b>	Indicates that the front panel lock is active.

# SPECIFICATIONS

## General Specifications

Model	ASR-6000 Series		
	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	
	Standard	External Signal Input	
	External	External Control I/O	
		V/I Monitor Output	
Interface	RS-232C	Complies with the EIA-RS-232 specifications	
	Optional 1	GPIB	SCPI-1993, IEEE 488.2 compliant interface
	Optional 2	CAN Bus	Complies with CAN 2.0A or 2.0B based protocol
	Optional 3	Device Net	Complies with CAN 2.0A or 2.0B based protocol
Insulation resistance	Between input and chassis, output and chassis, input and output	DC 500 V, 30 MΩ or more	
Withstand voltage	Between input and chassis, output and chassis, input and output	AC 1500 V or DC 2130 V , 1 minute	
EMC	EN 61326-1 (Class A)		

Safety	EN 61010-1
Vibration, Shock and Transportation Integrity	ISTA 2A Test Procedure
Environment	<p>Operating environment Indoor use, Overvoltage Category II</p> <p>Operating temperature range 0 °C to 40 °C</p> <p>Storage temperature range -10 °C to 70 °C</p> <p>Operating humidity range 20 % RH to 80 % RH (no condensation)</p> <p>Storage humidity range 90 % RH or less (no condensation)</p> <p>Altitude Up to 2000 m</p>
Dimensions (mm)	430(W)×176(H)×590(D) (not including protrusions)
Weight	Approx. 45 kg

- 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.

## Others

Model		ASR-6450, ASR-6500							
Phase mode		3P4W				1P2W			
R100/R200		R100		R200		R100		R200	
H/L Level		H	L	H	L	H	L	H	L
Voltage(V/V)		1/25	1/100	1/50	1/200	1/25	1/100	1/50	1/200
Current(V/A)		1/(6* N)	1/(24* N)	1/(3* N)	1/(12* N)	1/(1* 8*N)	1/(7* 2*N)	1/(9* N)	1/(36* N)

Model		ASR-6600, ASR-6660							
Phase mode		3P4W				1P2W			
R100/R200		R100		R200		R100		R200	
H/L Level		H	L	H	L	H	L	H	L
Voltage(V/V)		1/25	1/100	1/50	1/200	1/25	1/100	1/50	1/200
Current(V/A)		1/(8* N)	1/(32* N)	1/(4* N)	1/(16* N)	1/(2* 4*N)	1/(9* 6*N)	1/(12* *N)	1/(48* *N)
Accuracy		±5% of full scale							

Output  
Impedance  $600 \Omega$

- H Level mapping to +/- 10V
- L Level mapping to +/- 2.5V
- N mapping to external parallel unit number

## INFORMATION OF NAME ORDER

The name order of ASR-6000 series has its rules in definition for each character by order. Refer to the following contents for details.

Background	The definitions below describe the meanings behind each group of alphanumeric characters, in varied colors, of naming code for ASR models.	
Naming Definition	<b>ASR</b>	Switching Mode AC Power Source
	<b>6</b>	Series Name
	<b>XX</b>	Output Capacity <b>45</b> : 4500VA <b>50</b> : 5000VA <b>60</b> : 6000VA <b>66</b> : 6600VA
	<b>0</b>	Fixed number
	<b>-XX</b>	Maximum Output Capacity of Parallel Models
Lineup of ASR Series Models	<b>ASR-6450</b> <b>ASR-6600</b> <b>ASR-6450-09</b> <b>ASR-6600-12</b> <b>ASR-6450-13.5</b> <b>ASR-6600-18</b> <b>ASR-6600-24</b> <b>ASR-6600-30</b> <b>ASR-6600-36</b> <b>ASR-6500</b> <b>ASR-6660</b> <b>ASR-6500-10</b> <b>ASR-6660-13.2</b> <b>ASR-6500-15</b> <b>ASR-6660-19.8</b> <b>ASR-6660-26.4</b> <b>ASR-6660-33</b> <b>ASR-6660-39.6</b>	

# Declaration of Conformity

We

GOOD WILL INSTRUMENT CO., LTD.

declare that the below mentioned product

satisfies all the technical relations application to the product within the scope of council:

Directive: EMC; LVD; WEEE; RoHS

The product is in conformity with the following standards or other normative documents

◎ EMC	
EN 61326-1 :	Electrical equipment for measurement, control and laboratory use — EMC requirements
Conducted & Radiated Emission EN 55011 / EN 55032	Electrical Fast Transients EN 61000-4-4
Current Harmonics EN 61000-3-2 / EN 61000-3-12	Surge Immunity EN 61000-4-5
Voltage Fluctuations EN 61000-3-3 / EN 61000-3-11	Conducted Susceptibility EN 61000-4-6
Electrostatic Discharge EN 61000-4-2	Power Frequency Magnetic Field EN 61000-4-8
Radiated Immunity EN 61000-4-3	Voltage Dip/ Interruption EN 61000-4-11 / EN 61000-4-34
◎ Safety	
EN 61010-1 :	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements

## GOODWILL INSTRUMENT CO., LTD.

No. 7-1, Jhongsing Road, Tucheng District, New Taipei City 236, Taiwan

Tel: [+886-2-2268-0389](tel:+886-2-2268-0389) Fax: [+886-2-2268-0639](tel:+886-2-2268-0639)

Web: <http://www.gwinstek.com> Email: [marketing@goodwill.com.tw](mailto:marketing@goodwill.com.tw)

## GOODWILL INSTRUMENT (SUZHOU) CO., LTD.

No. 521, Zhujiang Road, Snd, Suzhou Jiangsu 215011, China

Tel: [+86-512-6661-7177](tel:+86-512-6661-7177) Fax: [+86-512-6661-7277](tel:+86-512-6661-7277)

Web: <http://www.instek.com.cn> Email: [marketing@instek.com.cn](mailto:marketing@instek.com.cn)

## GOODWILL INSTRUMENT EURO B.V.

De Run 5427A, 5504DG Veldhoven, The Netherlands

Tel: [+31-\(0\)40-2557790](tel:+31-(0)40-2557790) Fax: [+31-\(0\)40-2541194](tel:+31-(0)40-2541194)

Email: [sales@gw-instek.eu](mailto:sales@gw-instek.eu)