



Instruction Manual

for

Automatic Voltage Regulator



CAPACITY : 1000VA-5000VA

Before operating this product, please read these instructions carefully.

PLEASE READ AND SAVE THIS MANUAL

Thank you for selecting this Automatic Voltage regulator. It provides you with a perfect protection for connected equipments. The manual is a guide to install and use the regulator. It includes important safety instructions for operation and correct installation of the regulator. If you have any problems with the regulator, please refer to this manual before calling customer service.



This symbol gives information regarding points important for user's own health and safety, operation of regulator and the safety of your data.



This symbol gives information, warnings, and other suggestions.

1. IMPORTANT SAFETY INSTRUCTIONS

This regulator is designed to provide all the necessary safety conditions to protect home appliances and electronic office equipments. In case of any questions, refer to your authorized technical service representative.

- In order to avoid any damage to the regulator, it is advised to transport it in its own packing.
- In the event of sudden temperature changes such as from cold to the normal working temperature, mist can form inside the regulator. It is absolutely essential that the regulator be dry before switching it on. Due to this reason wait for at least 2 hours before operating it.
- Once dry, make sure you observe all the conditions in the environment section of the technical specifications table, before connect it to the mains power.



Earth cable should be chosen concerning the current capacity. All units' earth connections, which are connected to regulator, should be done with the earth cable. Without earth connection or non-approval earth connected units are dangerous for user's health and have high risk of electronic circuit board faults. When install the regulator, if use cable with improper specification can be dangerous for user's health and safety of the unit.



- Place all the cables in a proper place so that they are not stepped on or get caught into people's feet. Before connecting the regulator to the mains power make sure you carefully read all the instructions and warnings in the "Installation" section of this manual.
- Don't drop any foreign materials (like clips, nails, etc.) into the regulator.

- In emergencies (damage to the cabinet, front panel, or mains connections, splashing of liquid, dropping of any foreign materials into the regulator), please switch off the regulator, pull out the plug and inform the authorized service center.
- Do not connect any loads to the regulator, which exceed its power range.
- When input distortion or resistance is too high, regulator may not work properly.
- Keep the packaging for maintenance or moving.
- Wiring must be tight, to prevent falling off and oxidation.



The regulator can only be repaired by the authorized technical service personnel. Any attempt to open and to repair by the user on his own could prove to be dangerous.

Intended for installation in a controlled environment.

- a. The controlled environment should accord with the requirement of the specification.
- b. Do not install or operate your regulator in or near water.
- c. Do not place regulator on an unstable cart, stand or table.
- d. Do not place regulator under direct sunlight or close to heat emitting sources.
- e. Do not place power cord of regulator in any area where it may get damaged by heavy objects.



Placing magnetic storage media on top of the regulator may result in data corruption.



Special precautions:

When the regulator input comes from a generator:

- a. Output power capacity of generator must be higher than the rated capacity of regulator, otherwise the regulator and generator may not work properly;
- b. Output frequency of generator must be in range of 45Hz~65Hz, and wave form must be sine wave, otherwise the regulator and generator may not work properly.

Remarks:

Automatic Voltage Regulator is single phase.

We reserve the right to change specifications or discontinue models without notice.

2. BEFORE INSTALLATION

Each regulator was tested 100% before shipment. Check if the regulator has been subjected to any damage after unpacking it according to the follow steps:

A. Contents

Delivered pack includes:

- a. Regulator 1 piece
- b. User's manual 1 piece

B. Visual Observation

- a. Check the rating plate/label to verify the rated capacity is according to your purchase order.
- b. Make sure appearance of the regulator is not damaged. If you notice any damage please contact the authorized dealer.

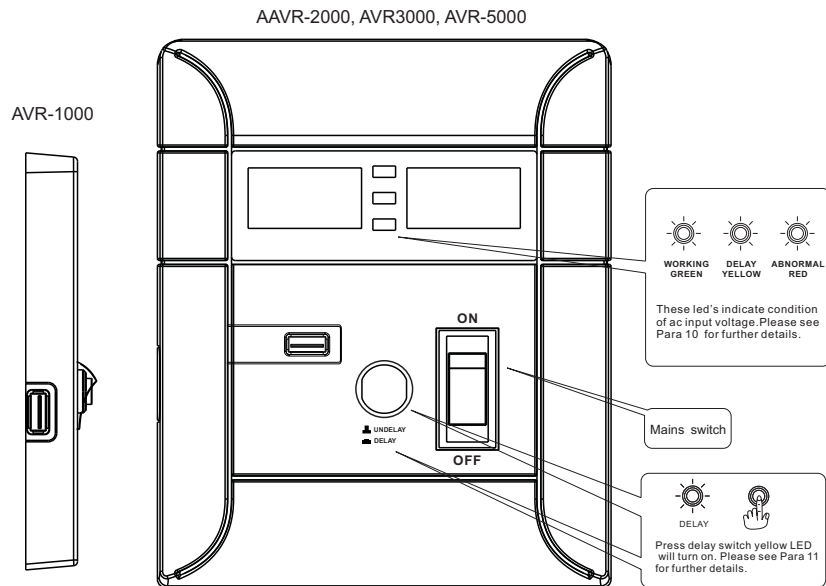


Do not try to operate the regulator in this situation!
Do not try to repair the regulator by yourself!

3. INTRODUCTION TO THE REGULATOR

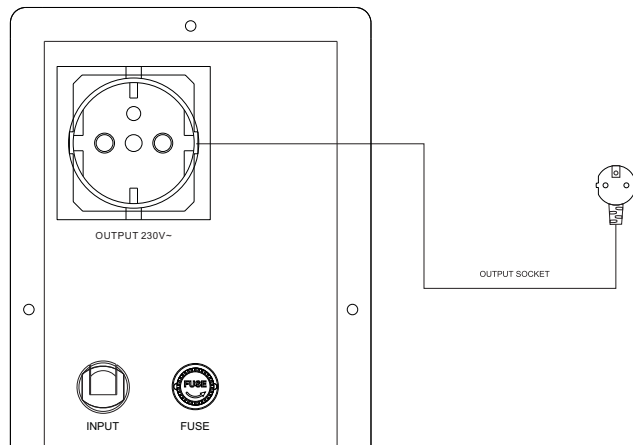
Familiarize yourself with the various features and facilities by studying the following diagrams to obtain maximum benefit from the regulator.

a. Dual Volt Digital Display of AVR

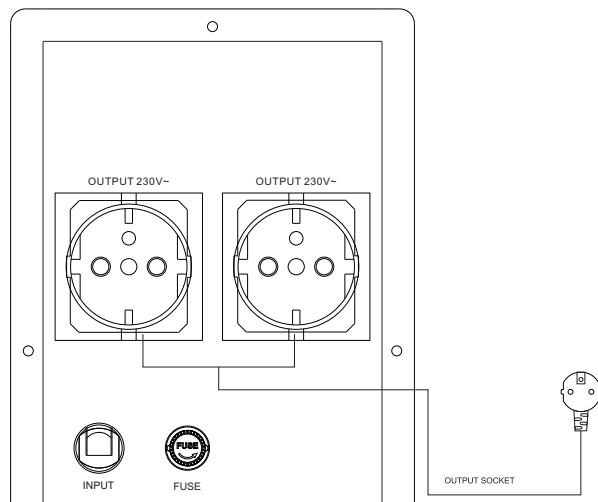


B. Rear-back of the regulator

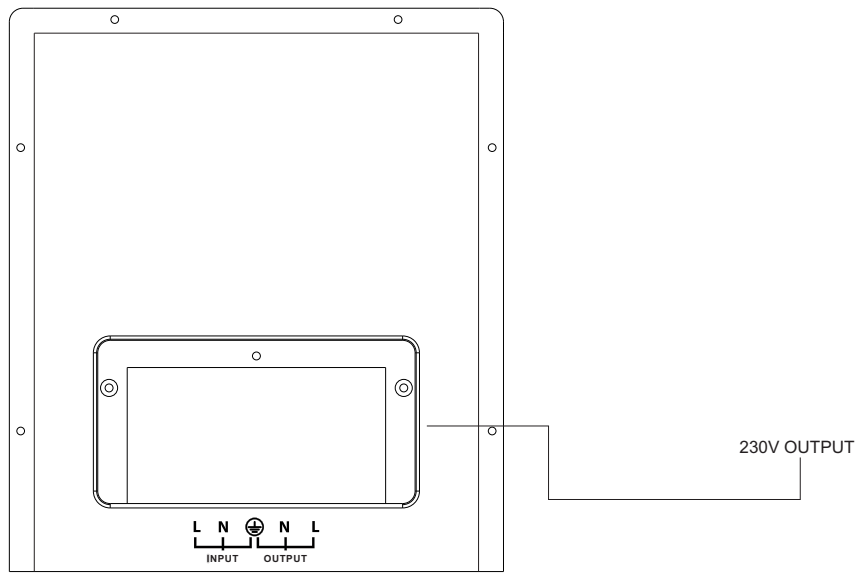
a. Model AVR-1000



c. Model AVR-2000VA

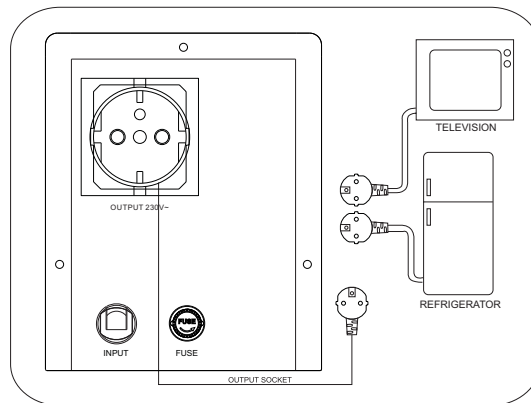


d. Model AVR-3000VA/AVR-5000VA



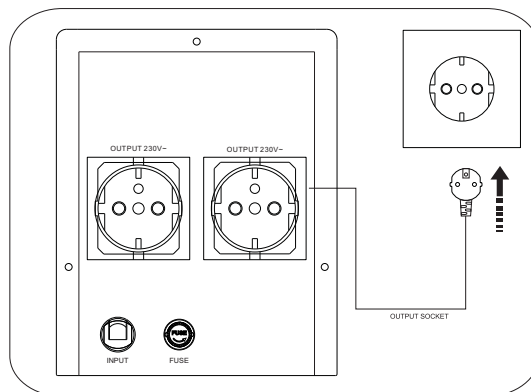
4. CONNECT THE ELECTRICAL APPLIANCES TO REGULATOR

- Make sure all appliances are turned “OFF”
- Make the connections as shown in diagram below, ensuring that the total starting power needed does not exceed maximum output power of the regulator.



5. CONNECT REGULATOR TO ELECTRICAL MAINS

Plug the AC mains cord to wall mains socket as shown in diagram below.



6. SWITCH ON THE REGULATOR

Push the power switch to "ON" position.

In Case of Power Failure:

- Switch "OFF" the regulator and all the appliances.
- Repeat above steps when power is restored.
- Switch Regulator "OFF". Then decrease the loading by un-plugging
- Wait few minutes for models below 2500, then switch power "ON" position.
- For models above 3000VA press the circuit breaker at the panel to restart the unit. Then switch "ON" the appliances one by one ensuring that their combined rated power does not exceed the regulator's rating.

7. LED Indication

A. Three LED indicators(1000VA to 5000VA)

- When the Green LED light is "ON", it indicates Power ON and also that the input voltage and output voltage is normal, the regulator is working.
- When the Yellow LED light is "ON" and flash, it indicates that the regulator is in delay status, the output will be delayed.
- When the Red LED light is "ON" and flash, it indicates the regulator is in a protection status.

B. Digital LED display

On excuting of regulator protection, the code of corresponding protection function is displayed.

(See Protection Functions chapter):

L – Input voltage is below admissible level; low-voltage protection operates: AVR is ON, but the load is disconnected; after input voltage level is increased up to the min admissible limit, the load is connected automatically.

H – Input voltage exceeds max admissible level; over-voltage protection operates: AVR is ON, but the load is disconnected; after input voltage falls down below the max admissible value, the load is connected automatically.

8. VOLTAGE DISPLAY

Dual Digital LED

- Input voltage displayer should indicate mains input supply to regulator
- The output voltage displayer should indicate output voltage supply to appliances connected to the regulator.

9. DELAY OPERATION

This model is designed with a delay feature to protect appliances with compressors which should not be switched on immediately after being switched off.

- All the models now include a delay feature. The default delay time will be 6 seconds or 3 minutes optional. This feature is required for products with motors & compressors to prevent those from being damaged due to frequent switching on & off.
- To select Delay mode, press the DELAY button on front panel. Delay LED will light "ON" & display will indicate "Zero" voltage. Delay time will be 3 minutes.
- When delay time has elapsed, delay LED will switch "OFF" and display will indicate the AC output voltage.
- During time delay, the digital LED displays show remaining time of the delay in seconds.

10. HIGH/LOW VOLTAGE PROTECTION

- This regulator is built in with a very specialized feature HIGH / LOW OUTPUT VOLTAGE PROTECTION CIRCUIT.
- This special and unique circuitry is designed to protect connected appliances whenever the output voltage is higher/lower than the normal range.
- If the output voltage is over/ below the normal range, the output power supply will be cut "OFF" automatically.
- Once the input mains power returns to normal range, the regulator will restore the output automatically.

11. SHORT CIRCUIT PROTECTION

- This regulator is built in with a very specialized feature SHORT CIRCUIT PROTECTION CIRCUIT.
- When over current or short circuit happen: for model AVR-5000VA, the mains switch on the front will automatically bounce to "OFF" position to cut off the input power supply.
- When over current or short circuit happen: for model AVR-1000~AVR2000VA, the fuse on the back will automatically burnt to cut off the input power supply.

12. PLACEMENT

For safety and better performance and longer lifespan, please handle and place the regulator according to the follow instructions:

A. Moving

- a. Cut off input; remove all wires connected to the regulator
- b. Do not move the regulator upside down
- c. Rough handling is prohibited

B. Environmental

Keep away from unstable base or sources of excessive vibration. Do not place the regulator under direct sunlight or excessive humidity.

Keep away from fire, heat sources.

Keep the regulator in well ventilated place. Leave at least a distance of 10 cm between the regulator and the walls in order to maintain adequate air-flow.

Keep away from corrosive gas or fluid.



Install the regulator in a cool, dry, clean place - away from windows, dust, moisture and cold. To prevent fire or electrical shock, do not expose this unit to rain or water.

13. MAINTENANCES

This regulator is basically maintenance free! But regular maintenance can extend the lifespan of regulator by the following steps:

Regular inspection

- shut down the regulator completely.
- use cotton cloth and detergent to clean the body and ventilation holes.
- check all the terminals, replace the abnormal one with that of the same.

Extraordinary inspection

- When malfunction occurs, or the regulator is abnormal, please measure and
- check the parameters, refer to the authorized dealer if needed. In thunder and lightning or rainy season, Extraordinary Inspection should be executed to prevent malfunction.

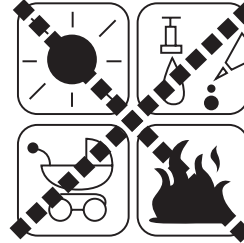
To extend lifespan of the regulator, ventilation fans should be replaced every three years.

Maintenance should not be operated when regulator is working.



14. CAUTION

- Avoid overloading-
Do not use the regulator beyond its maximum output power.
- When connected to any appliance with built-in motor or compressor the starting power is generally several times of the appliance' s listed power rating. Make sure the total starting power capacity of all connected appliances does not exceed the listed maximum output power of the regulator. For color TV's, calculate it at twice its listed capacity.
- Make sure the Regulator is of the same output voltage and frequency as the appliances it is connected to; and the electrical mains voltage is within the listed range of the input voltage of the regulator.
- Always place the Regulator in an environment which is:
 - well ventilated
 - not exposed to direct sunlight or heat source
 - out of reach from children
 - away from water; moisture; oil or grease
 - away from any flammable substance
 - secure and no risk of falling.
- If the power cord is damaged, it must be replaced by the authorized dealers or similarly qualified persons in order to avoid a hazard.



15. SPECIFICATIONS

Model No.	Input		Output		Output power
	Voltage	Freq.	Voltage	Freq.	
AVR-1000	140V~275V	50Hz	230V	50Hz	1000VA MAX
AVR-2000					2000VA MAX
AVR-3000					3000VA MAX
AVR-5000					5000VA MAX

*AC Input Range	140V~275V
Input Frequency	50Hz
*AC Output Voltage	230V
Output Frequency	synchronized with input frequency
*Output Precision	-13%, +10%
Distortion:	<3%
Efficiency	>95%
Delay Time	6/180 seconds selectable
Protection	Output High Voltage, Output Low Voltage, Short Circuit
Noise	<65dB (at 1m distance)
IP Level	IP21
Operating Temperature	-10°C~40°C
Safety	CE (EMC+LVD)
Operation Humidity	Max 95%, non-condensing
Storage Temperature	-20°C~40°C