USER'S MANUAL

AUTOMATIC VOLTAGE REGULATOR

Model: AVR-SRV-500/1000/5000/10KVA-WL

Thank you for choosing a **WELL** product. Please read carefully the following instructions and keep them within reach.

Please read and save this manual!

Thank you for selecting this smart automatic voltage regulator (AVR). It provides you with a perfect protection for connected equipment.

This manual is a guide to install and use the AVR. It includes important safety instructions for operation and correct installation of the AVR. Should you have any problems with the AVR, please refer to this manual before calling customer service.

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

This symbol gives information, warnings, and other suggestions.

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1. Important Safety Instructions

This AVR has been designed to provide all the necessary safety conditions needed to protect electronic office equipment including information systems. In case of any questions, refer to your authorized technical service representative.

– In order to avoid any damage to the equipment, 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 AVR. It is absolutely essential that the AVR be dry before switching it on. Due to this reason wait for at least 2 hours before operating it.
-- Once it's dry, make sure you observe all the conditions in the environment section of the technical specifications table, before introducing it into the circuit.

Earth cable should be chosen concerning the current capacity. All units' earth connections, which are connected to AVR, should be done with this earth cable. Without earth connection or unproved earth connected units are dangerous for user health and have high risk of electronic circuit board faults. When installing the AVR to use cable with improper diameter 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 AVR to the circuit makes 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 equip- ment.
-- In emergencies (damage to the cabinet, front panel, or mains connections, splashing of liquid dropping of any foreign materials into the equipment) switch-off the AVR, pull out the plug and inform the authorized service center.
-- Do not connect any loads to the AVR, which exceed its power range.
-- When input distortion or resistance is too high, AVR may not work properly.
--Keep the packing for maintenance or moving.
-- Wiring must be tight, to prevent falling off and oxidation.

The AVR 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 AVR in or near water.
c. Do not place AVR on an unstable cart, stand or table.
d. Do not place AVR under direct sunlight or close to heat emitting sources.
e. Do not place AVR power cord in any area where it may get damaged by heavy objects.

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

 **Special precautions**:
When the AVR input comes from a generator:
a. Output power capacity must be higher than the AVR rating, or the AVR and generator may not work properly;
b. Output frequency of generator must be in range of 45 to 65Hz, and wave form must be sine wave, otherwise the AVR and generator may not work properly.

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2. Specifications

Model No.	Power Capacity	Outlet	Cooling Mode	Circuit Protection
AVR-SRV-500VA-WL	500VA/300W	1 x schuko	Nature	Fuse (5A, 250V)
AVR-SRV-1000VA-WL	1000VA/600W	1 x schuko	Nature	Fuse (10A, 250V)
AVR-SRV-5000VA-WL	5000VA/3000W	Block terminal	Nature	Circuit breaker(30A, 250V)
AVR-SRV-10KVA-WL	10KVA/6000W	Block terminal	Cooling fan	Circuit breaker(60A, 250V)

AC Input Voltage	140V~260V
Input Frequency	45Hz~65Hz
AC Output Voltage	220V
Output Frequency	Synchronized with mains
Output Precision w/o load	±3%
Distortion	<3% (compare to input wave form)
Power Factor	0.6
Efficiency	>0.95
Operating Temperature	-10°C~40°C
Operating Humidity	0~90%(Non-condensing)
Noise	≤56dB (full load, distance at 1 meter)
Delay Time	6/180 seconds selectable
Protection	Output Low Voltage, Output High Voltage, High Temperature, Short Circuit.
Certification	CE (EMC+LVD)
IP Class	IP20
Protection class	I

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

3. Before Installation

Each AVR was tested 100% before shipment, check if the AVR has been subjected to any damage after unpacking it according to the following steps:

A. Contents
Delivered pack includes:

AVR	1 piece
User's manual	1 piece

B. visual observation

a. Check the name plate to verify the rated capacity is according to your purchase order.
b. Make sure appearance of the AVR is not damaged. If you notice any damage, contact the transport firm and the authorized dealer.

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

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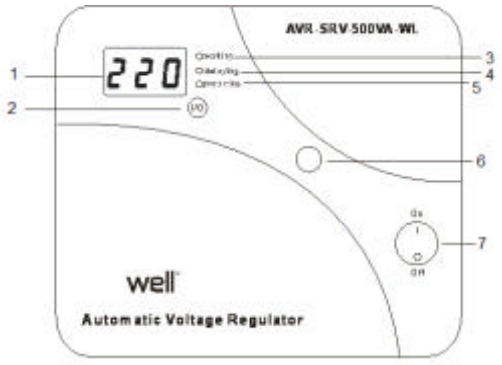
4. Introduction to the Regulator

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

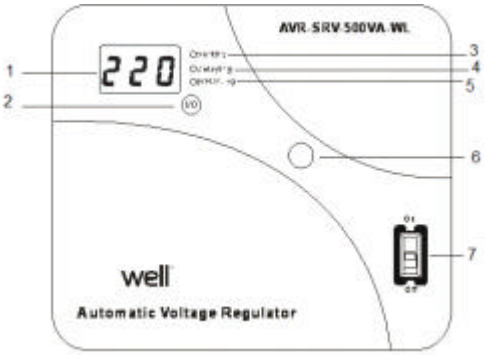
a. Front of the Regulator

500/1000VA model



1. Input Voltage/Output Voltage
2. Input/Output voltage selective button
3. Green LED
4. Yellow LED
5. Red LED
6. Delay button
7. Power switch

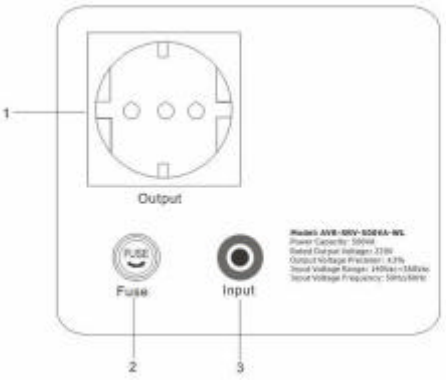
5000/10KVA model



1. Input Voltage/Output Voltage
2. Input/Output voltage selective button
3. Green LED
4. Yellow LED
5. Red LED
6. Delay button
7. Circuit breaker

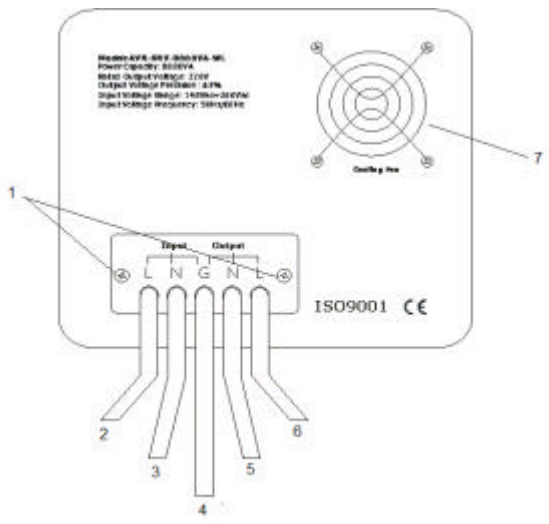
b. Rear of the Regulator

500/1000/VA model



1. Outlet
2. Fuse
3. AC input cable

5000/10KVA model



2. Input Live
3. Input Neutral
4. Grounding
5. Output Neutral
6. Output Live
7. Cooling fan

Remark: AVR-SRV-5000VA-WL don't have cooling fan.

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5. Operation of the AVR

a. Connect the Electrical Appliances to Regulator

• Make sure all appliances are turned "OFF", and put power switch of AVR to "OFF" position.
• For model from 500VA to 1000VA, plug the AC mains cord of the appliances into the output socket of AVR. ensuring that the total starting power needed does not exceed the rated maximum output power of the AVR.
• for model from 5000VA to 10KVA, please unscrew the terminal cover and you will find block terminal inside. Use the heavy duty cables to connect the electrical appliances to the output terminal. Connect all cables in correct position. (see page 3)

b. Connect Regulator to Electrical Mains

• For model from 500VA to 1000VA, just plug the AC mains cord to wall mains socket.
• For model from 5000VA and 10KVA, Use the heavy duty cables to connect the AVR to the mains. Connect all cables in correct position. (see page 3)

c. Switch on the regulator, Switch the power "ON"

• Put the power switch to "ON" position, the yellow LED will illuminate and blink . At the same time, the digital display will show the elapsing delay time. Generally delay time is set at 6~10 seconds.
• Then the yellow LED lights off and the green will illuminate.
• The digital display will show output voltage supplying to appliances connected to the regulator.
• Switch "ON" the appliances one by one.

In Case of Power Failure:

• Switch "OFF" the regulator and all the appliances.
• Repeat above steps when power is restored.

d. Display of Input Voltage and Output Voltage

•The output voltage will show in the display after switch it on.
•By pressing the "Input/Output Voltage Selective Button", the input voltage will be indicated in the display and flash.
•Press the "Input/Output Voltage Selective Button" again to show the output voltage.

e. LED Operation

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

f. Delay Operation

• This model is designed with a delay feature to protect appliances especially the appliances with compressors(like air-conditioner, fridge, motor, pump,and etc). which should not be switched on immediately after being switched off.
• The delay time is generally set at 6/180 seconds selectable. **Select delay or undelay before switch on the AVR.**
• Press down the delay button, then you select the delay, the delay time will be 180 seconds. After switch on the AVR, wait for 180 seconds, then the AVR delivers output; Press up the delay, it means undelay, under "undelay" status, the delay time is 6 seconds.

If you connect the appliances with compressors, we suggest that you select "delay" before switch on the AVR.

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• The delay time will show in the display after switch on the AVR. When delay time has elapsed, delay LED will switch "OFF" and display will indicate the AC output voltage.

g. Integrated Automatic Protection Circuit (IAPC)

• This model is equipped with a specially designed INTEGRATED AUTOMATIC PROTECTION CIRCUIT.
• This very specialized and unique circuitry is now redesigned to automatically cut off the input voltage whenever the input voltage is above the input voltage range, rendering full and comprehensive protection to the regulator and connected appliances.
• When the input voltage returns to within Low and Normal ranges, the IAPC will automatically switch the regulator back "ON" and also restore power to all connected appliances.

h. Temperature Protection

• This AVR is equipped with a unique TEMPERATURE PROTECTION CIRCUIT designed to protect the transformer, giving you longer and satisfactory use of the Regulator.
• If the internal temperature reaches the limit or above, the output will be cut "OFF" automatically, and the display will show "C". At the same time, the Red LED lights up.
• When the internal temperature returns to normal range, output power will be restored. After the delay time, the display will indicate output voltage.

I. High Output Voltage Protection

• This AVR is built in with a very specialized feature HIGH OUTPUT VOLTAGE PROTECTION CIRCUIT.
• This special and unique circuitry is designed to protect connected appliances whenever the output voltage is higher than the normal range.
• If the output voltage is over the normal range, the output power supply will cut "OFF" automatically and the display will show "H". At the same time, the Red LED lights up.
• Once the input city power returns to normal range, the AVR will restore the output

j. Low Output Voltage Protection

• When the output voltage is below the normal range, the output will be cut "OFF" automatically and the display will show "L". At the same time, the Red LED lights up.
• Once the input city power returns to normal range, the AVR will restore the output to the loads.

k. Short circuit protection.

In case of a short circuit or overload, the fuse will blow(for model from 500VA and 1000VA) or the circuit breaker will bounce to "OFF" position to cut off the input power automatically (for model from 5000VA and 10KVA)

• Check if the AVR is overloaded, if so, please remove some loads.
• For model from 500VA and 1000VA, replace the fuse with same rating, then switch on the AVR
For model from 5000VA and 10KVA, please wait for 5 to 10 seconds, then press the breaker switch to "ON" position The AC input power will be restored.

6. Placement

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

a. Moving

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

Environmental

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

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Keep away from fire, heat sources.
Keep the AVR in well ventilated place. Leave at least a distance of 10 cm between the AVR and the walls in order to maintain adequate air-flow.
Operating Temperature: -10°C~40°C
Operating Humidity: 0~90% (Non-condensing)
Keep away from corrosive gas or fluid.

Install the AVR 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.

7. Maintenances

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

Regular Inspection
Shut down the AVR 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 specification.

Extraordinary inspection
When malfunction occurs, or the AVR 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.
Maintenance should not be operated when AVR is working.

8. Other

This AVR is designed and made by strict standards and quality control system for common use, but if apply to purposes may cause any dangerous to human or other lives, include but not limited to the following case, please refer to our company.

a. Apply to traffic system;
b. Apply to medical purpose;
c. Apply to nuclear, power system;
d. Apply to aviation and aerospace;
e. Apply to all kinds of safety devices;
f. Other special usages.

Waste electrical and electronic equipment are a special waste category, collection , storage, transport, treatment and recycling are important because they can avoid environmental pollution and are harmful to health
Submitting waste electrical and electronic equipment to special collection centers makes the waste to be recycled properly and protecting the environment.
Do not forget !Each electric appliance that arrive at the landfill, the field , pollute the environment!