



## **USER MANUAL**

# **AUTOMATIC VOLTAGE REGULATOR (AVR)**

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# AVR (Automatic Voltage Regulator)

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## 1- SAFETY WARNINGS



**For the user's own safety, the safety of data and this product read the following safety instructions carefully before using the unit!**

- This system 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 authorised 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 from cold to the normal working temperature, condensation can form inside the AVR. It is absolutely essential that the AVR is dry before switching it on. Due to this reason wait for at least 2 hours before operating.
- Once dry, make sure you observe all the conditions in the environment section of the technical specifications table, before switching into circuit.
- When installing the AVR it is necessary to use a connection cable of suitable diameter. Note that the neutral and the earth connections should be connected correctly.
- Install all cables safely so that they are not stepped or present a trip hazard. Before connecting the AVR into circuit make sure you carefully read all the instructions and warnings in the "Positioning and Operating" section of this manual.
- Don't drop any foreign materials (like clips, nails etc...) into the equipment.
- In emergencies (damage to the cabin, 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 authorised service center.
- The AVR can only be repaired by a fully trained authorised technical service engineer. Any attempt to open and repair by the user could prove to be dangerous and invalidate the Warranty.
- Do not connect any consumer loads to the AVR, which exceed its power ratings.
- Read the instructions carefully in the "Maintenance & Cleaning" section when cleaning the AVR.
- Leave at least a distance of 30 cm between the AVR and the walls in order to maintain adequate air-flow.

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## 2- Description of the symbols used in this manual

The following symbols have been used in this manual.

This symbol gives information regarding 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.



This symbol shows the operations that need to be executed.



### 3- Introduction

INFORM AVR is designed for unstable mains and safety of load.

Mains input and output are written on the terminals. When installing the AVR it is necessary to use a connection cable of suitable diameter to ensure correct operation of the AVR.

The AVR will shut down automatically when the input voltage is out of limits, one of the phase's fail or there is an output short circuit. Once the temporary fault has cleared the AVR will automatically start.

If a short term fault occurs, the AVR will continue to operate by increasing the delay time. A continuous fault longer than the delay time will cause the, AVR to STOP automatically.

The 3 analog displays, on the front panel of AVR are used to view the applied voltage and mains input to the unit, the Input voltage can be checked by the RED signal lights.

The shut down of the AVR and the transfer of the mains to the output is done by 1-0-2 REG. switches.

- 1: Input bypass to output position
- 0: No voltage applied position.
- 2: Regulator position.

#### **3.1 Preliminary warnings to use the AVR**

Automatic Voltage Regulators (AVR) are used to protect the sensitive loads from the unstable mains and to provide proper operating of the load.

Related points for human health are mentioned in “**Safety Warnings**” part of this manual.

In this part, these points will repeat to give information about the connections of AVR and the load.

- When installing the AVR to use cable with improper diameter can be dangerous for user health and safety of the unit.
- Earth cable should be chosen concerning the current capacity, which is written on the label on the front panel of the AVR. 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.

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## 4- INSTALLATION & OPERATING

- ▶ Check if the AVR has been subjected to any transportation damage before unpacking it.

**i** If you notice any damage please contact the transport firm.  
Check if all the spare parts have been supplied with the AVR.

Delivered pack includes:

- Automatic Voltage Regulator
- User Manual

Move the unit to a suitable location for installation using necessary lifting gear or rollers.

Plug the input power cable of AVR to properly earthed mains.

- ▶ Check the connections before changing the position of the input, output, and bypass switches to suitable positions.
- ▶ If there is any circuit breaker or fuse on the mains line of Automatic Voltage Regulator, switch it to ON position. Switch the input fuse to ON position on the AVR. Switch the mechanic by-pass  
Switch to REGULATOR (2) position.
- ▶ Automatic Voltage Regulator is operating now. During the start, RED signal lamp is lighting and voltmeter is working. When the output voltage is displayed normally, AVR will start automatically.  
During this time there will be voltage on output terminals and plug.
- ▶ Connect the load to the circuit.
- ▶ When the main is out of tolerance AVR will STOP automatically. When the mains return to normal limits regulator will START automatically.
- ▶ Regulator will be out of circuit during the MAINS (1) position of mechanic bypass switch. During this time there will be voltage on output terminals and plug.

In three phase regulators, automatic phase protection is available. If one of the input phases is OFF or unstable, other 2 phases will be cut off automatically.

## 5- MAINTENANCE & CLEANING

No user AVR maintenance is required. Occasionally clean the dust off the fan with a vacuum cleaner.



Do the cleaning with the input fuses OFF and BYPASS switch is in “0 “position for safety reasons.

Do not use detergents or any cleaning material that may damage the plastic surfaces.

Do not let any liquid get into the AVR.

Ensure that the air vents are clear.

The AVR body can be wiped with a clean and dry cloth.

## 6- TROUBLESHOOTING

If any errors of faults are observed on the AVR, make sure you check the following points before informing the authorised technical service:

- Does the distribution panel have mains connection?
- Have the Input / Automatic fuses blown?

Report the following to the authorised service engineers/company:

- Equipment Details found on the product label (model, no)
- Description of the fault

## 7- STORAGE

The unit has to be stored in a dry place between –30°C and 70°C.

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## 8- TECHNICAL SPECIFICATIONS

### ENVIRONMENT CONDITIONS:

Protection Type is IP 20

Temperature: Operating - 5 °C.....+ 55°C  
Storage - 30°C.....+ 70°C

Relative Humidity: Operating ..... 20% 90%  
Storage 20%..... 95%

Do not operate when condensation is detected!

Leave enough space for ventilation around the AVR:

Front : 30 cm  
Back : 30 cm

### Response Speed

80 V / sec.

### Electrical Specifications

Output Voltage regulation :± 1  
Power Factor :1  
Crest Factor :3  
Total Harmonic Distortion (THD): without distortion.  
Output frequency :same as the input

### Noise Level

Relative noise level depending on the installation site:

For all models ≤ 45 dB (A)