

SVEN®
YOU WANT – WE CAN

Wall-Mounted Automatic
Voltage Regulator

OPERATION MANUAL



AVR PRO LCD 5000
AVR PRO LCD 8000
AVR PRO LCD 10000
AVR PRO LCD 12500

www.sven.fi

Congratulations on the purchase of Sven automatic voltage regulator!

Please read this Operation Manual before using the unit and retain this Operation Manual in a safe place for future reference.

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UNPACKING

Unpack the device carefully. Make sure there are no accessories left in the box. Check up the device for damage; if the product was damaged during transportation, address the firm which carried out the delivery; if the product functions incorrectly, address the dealer at once.

CONTENTS

1. SAFETY PRECAUTIONS	2
2. PACKAGE CONTENTS	2
3. SPECIAL FEATURES	2
4. DESCRIPTION	3
5. APPLICATION	4
6. INSTALLATION	4
7. PAUSE FUNCTION	5
8. PROTECTION FUNCTION AGAINST HIGH AND LOW INPUT VOLTAGE, OVERLOAD AND OVERHEAT	5
9. TROUBLESHOOTING	5
10. TECHNICAL SPECIFICATIONS	6

1. SAFETY PRECAUTIONS

Before using this device, please read the safety rules carefully:

- It is strongly forbidden to open the cover of the device, there is high voltage inside. If some problems occur, please read the operation manual carefully or address an authorized service center. For the list of authorized service centers please go to **www.sven.fi**.
- Do not let liquid get inside the device, it can cause short circuit or electric shock.
- In case there are signs of improper operation of the device (sparkling, unusual smells, etc.), unplug the device from the mains immediately and address your nearest authorized service center.
- It is forbidden to connect the automatic voltage regulator to devices with power consumption higher than its maximum output power. It can cause breakdown of the device.
- Do not let children operate the device.

It is strongly forbidden to operate the device in the following conditions:

- in dusty environment or environment containing highly inflammable gas;
 - at temperature higher than 40 °C or lower than 0 °C;
 - at relative humidity level higher than 90 %;
 - in direct sunlight or next to heating elements;
 - in vibration areas;
 - outdoors.
- In case of fire use only powder fire extinguisher, as water can cause electric shock.

Note. It is forbidden to connect AVR PRO LCD regulators to standard mains sockets! They are to be connected to the mains, as well as consumer-devices are to be connected to regulators, through terminals and relevant cables (not included). Regulators can be mounted on the wall and connected to the mains only by qualified specialists. Make sure that vent holes and the fan are not closed during the mounting.

2. PACKAGE CONTENTS

- Automatic voltage regulator — 1 pc
- Operation manual — 1 pc
- Warranty card — 1 pc

3. SPECIAL FEATURES

- Extended precision of input voltage regulation
- Protection of consumer-devices against high or low input voltage and high-frequency interference
- CPU control
- Switching mode in the sinusoid zero point
- Pause function for safe voltage supply after power supply renewal
- Autotransformer thermal protection
- Regulator status indication
- Digital display of input/output voltage on the front panel
- Metal case
- Terminal connection

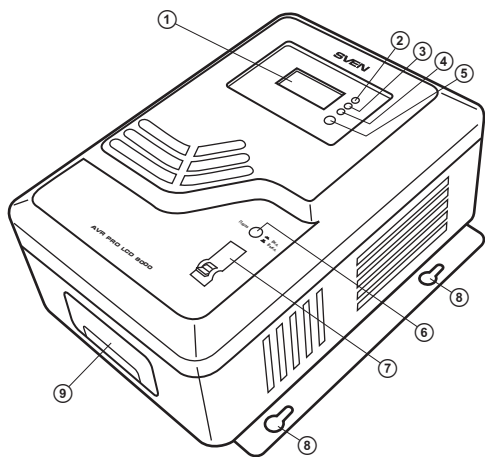


Fig. 1. Front panel

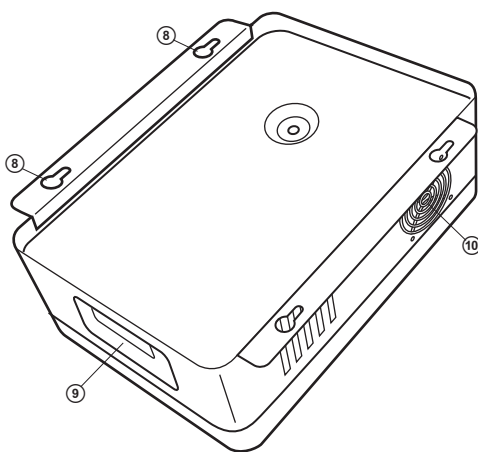


Fig. 2. Rear and side panels of AVR PRO LCD-10000*

4. DESCRIPTION

① Digital display: on default it displays output voltage level; “H” is displayed after shutoff due to high voltage; “L” is displayed after shutoff due to low voltage; “C” is displayed on overheating protection operation; In the Pause mode the countdown time to switch on the AVR is displayed

- ② Normal voltage LED
- ③ Pause LED
- ④ High/Low voltage LED
- ⑤ Input or Output voltage display selection button
- ⑥ Turn-on delay selection button (6 or 180 s)
- ⑦ On/Off switch
- ⑧ Wall mounting holes
- ⑨ Terminal box
- ⑩ Fan
- ⑪ Terminal block
- ⑫ Connection diagram

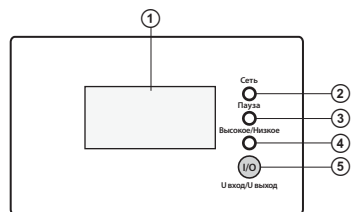


Fig. 3. Control panel

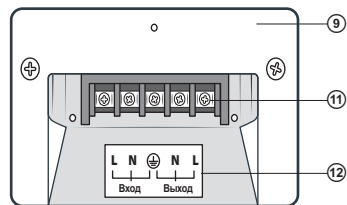


Fig. 4. Terminal box

* Rear panels of AVR PRO LCD 5000/8000/12500 are similar to AVR PRO LCD 10000 model. AVR PRO LCD-5000 model is not the built-in fan.

5. APPLICATION

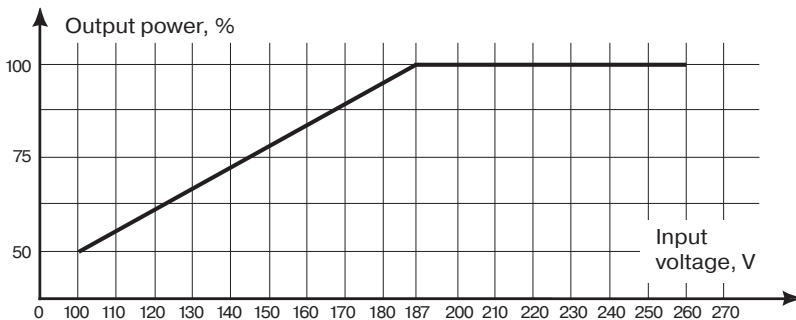
Automatic voltage regulator (AVR) is designed for providing various equipment with high-quality stable electric power supply in conditions of significant and continuous deviations of mains voltage and protecting your equipment against high-voltage impulses and overheating. It has wall mount holes.

6. INSTALLATION

Attention! Before connecting the regulator, make sure that all consuming devices connected to it are off.

- Before installing the AVR, please make sure that total power of all voltage consumers is lower than AVR power. Besides, taking into account the starting load and power factor of consumers, it is necessary to apply power margin factor of 1.2–1.5; for such equipment as air conditioners, fridges, etc., it should be 1.5–2.

Attention! When choosing an AVR, it is necessary to know that reduction of input voltage increases value of input current, which means that maximum power of AVR is reduced too! Such dependence is shown in the graph below:



Note. Adhere strictly to such dependence. If the condition stated above is not adhered to, warranty servicing becomes void!

- Voltage consumer-devices should be connected when the AVR is off. Open the terminal box ⑨ and with the help of relevant cables (not included) connect the appropriate load to the AVR terminals ⑩, after that connect the AVR to the 220 V household mains according to the diagram ⑫ in Fig. 4.

Keep in mind! PRO LCD AVRs should be connected by specialists-electricians only.

- Switch on the AVR with ON/OFF switch ⑦. Switch on connected voltage consumer-devices after that only.
- If the AVR operates properly, the green “Mains” LED ② illuminates, the LED ① will display the voltage at the output of the AVR, i.e. the output voltage.
- When the mains voltage exceeds the allowable rate (lower threshold is 133 V, upper threshold is 268 V) the LED ④ illuminates, the AVR disconnects the load automatically and the LED ① displays “L” or “H”.

Attention! It is recommended to switch off the AVR and every connected consumer-device when the power supply is dropped.

7. PAUSE FUNCTION

- The Pause feature is designed to protect equipment in case of frequent drops of the mains supply. After power supply has been recovered, the AVR switches on within 6 or 180 seconds. The LED ③ lights up if this feature has been activated (On/Off button ④ is in On position).

8. PROTECTION FUNCTION AGAINST HIGH AND LOW INPUT VOLTAGE, OVERLOAD AND OVERHEAT

- The AVR is equipped with protection system against high and low input voltage. The load is disconnected automatically when the mains voltage exceeds the allowable rate. When the voltage is recovered the AVR will resume operation automatically.
- The AVR is equipped with the transformer thermal protection system, which protects the AVR against overloading and overheating. In AVR PRO LCD 8000/10000/12500 models the fan is switched on when the temperature is 55°C, but at a temperature of 120°C the thermal protection integrated in the transformer is actuated and the load is cut off ("C" symbol is displayed on the LED ①). AVR PRO LCD-5000 is equipped with the thermal protection integrated in the transformer only, which actuates when the temperature reaches 120°C. The AVR switches on automatically after cooling.

9. TROUBLESHOOTING

Problem	Cause	Solution
The AVR does not start.	<ol style="list-style-type: none"> The switch is off. There is no power in the socket. The automatic fuse has activated. The load connected is too powerful. 	<ol style="list-style-type: none"> Press the switch once again. Make sure there is electric power supply. Disconnect part of the load and switch on the AVR again. Disconnect part of the load.
The AVR is in operation mode, but there is no output voltage.	The AVR is out of order.	If the fault is not eliminated, please address to an authorized service center.
The AVR often produces clicking sound.	Input voltage is very unstable.	The AVR is regulating output voltage.
The AVR has disconnected the load. High/Low voltage LED illuminates.	Input voltage is beyond possible regulation range of 140-260 V.	When the input voltage is recovered (140-260 V), the AVR switches on automatically.

If none of the above methods can solve the problem, please seek professional advice at your nearest service center. Never attempt to repair the product yourself.

10. TECHNICAL SPECIFICATIONS

Parameters	Models	AVR PRO LCD 5000	AVR PRO LCD 8000	AVR PRO LCD 10000	AVR PRO LCD 12500
Maximal output power, W*		4000	6400	8000	10000
Fuse, A		32	50	63	2 × 32
Input voltage, V		~ 140 – 260			
Input frequency, Hz		50			
Output voltage, V		~220 ± 8 %			
Output frequency, Hz		50			
Switching time, msec		≤ 10			
Protection		against high/low mains voltage, high-frequency interference, short circuit and overloading; integrated thermal protection			
Environment temperature, °C		0 ~ 40			
Relative humidity, %		10 ~ 90 (without condensation)			
Dimensions, mm		350 × 285 × 160	420 × 335 × 155		
Weight, kg		10.5	15.2	17.9	18.1

* The AVR output power is rated for 187 V input voltage (220 V – 15 %) (According to GOST 27699–88 requirements).

Notes:

- **Technical specifications given in this table are supplemental information and cannot give occasion to claims.**
- **Technical specifications are subject to change without notice due to the improvement of SVEN production.**

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Модели: **AVR PRO LCD 5000, AVR PRO LCD 8000,
AVR PRO LCD 10000, AVR PRO LCD 12500**

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Условия гарантийного обслуживания смотрите
в гарантийном талоне или на сайте **www.sven.fi**.
Гарантийный срок: 24 мес. Срок службы: 5 лет.
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of Oy Sven Scandinavia Ltd. 15, Kotolahdentie, Kotka,
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