



## OPERATION MANUAL



WALL-MOUNTED AUTOMATIC  
VOLTAGE REGULATOR

**WM-5/130-320V**  
**WM-10/130-320V**

***Congratulations on the purchase of TM REAL-EL 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**

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

# Wall-mounted Automatic Voltage Regulator

**WM-5/130-320V**  
**WM-10/130-320V**

## 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 and address an authorized service center. For the list of authorized service centers please go to **[www.real-el.com](http://www.real-el.com)**.
- 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 humidity level higher than 70 %;
- 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 WM-5/130-320V and WM-10/130-320V 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 operation.**



**Caution! There is high voltage inside on the insulation elements which can result in electric shock.**

## 2. PACKAGE CONTENTS

- Automatic voltage regulator – 1 pc
- Operation Manual – 1 pc
- Warranty card – 1 pc

## 3. SPECIAL FEATURES

- High precision of output voltage regulation
- Wide range of input voltages 130 – 320 V
- CPU control
- Digital indicator of input and output voltages on the front panel
- Additional socket in the case
- Protection of devices-consumers against input voltage fluctuations and high-frequency interferences
- Pause mode for safe power supply after electrical power resumption
- Forced ventilation mode

Operation Manual

WM-5/130-320V  
WM-10/130-320V

4. DESCRIPTION (see Fig. 1 – 7)

- ❶ Fan
- ❷ Outlet socket 16 A (max)
- ❸ Ø 6 mm wall mounting holes
- ❹ Input voltage digital indicator: input voltage level is displayed by default; “H” is displayed when disconnected due to high voltage; “L” is displayed when disconnected due to low voltage; “t” is displayed when disconnected due to overheating
- ❺ Output voltage digital indicator: output voltage level is displayed; it operates as a countdown timer during Pause mode before the AVR turning on
- ❻ AVR automatic circuit breaker
- ❼ Мережа: indicator is active when voltage is in the inlet
- ❽ Затримка: indicator is active when AVR operates within 6 or 180 sec time delay
- ❾ Terminal box
- ❿ On-delay time selection button (6 or 180 sec)
- ⓫ Захист: indicator blinks once a second after the high or low inlet voltage protection actuation or after temperature protection actuation; it is active continuously after high inlet voltage protection actuation
- ⓬ Connection diagram

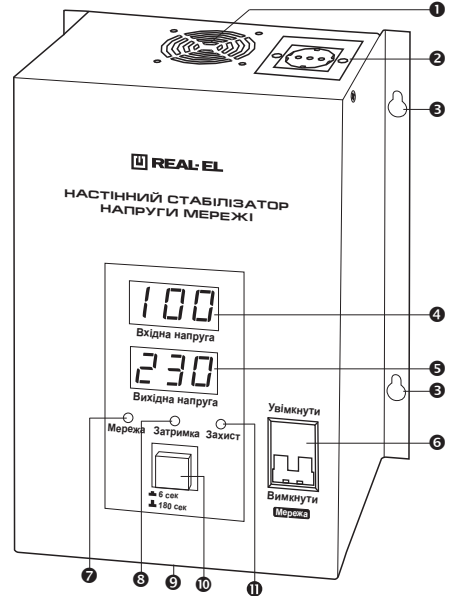


Fig. 1. WM-5 front panel

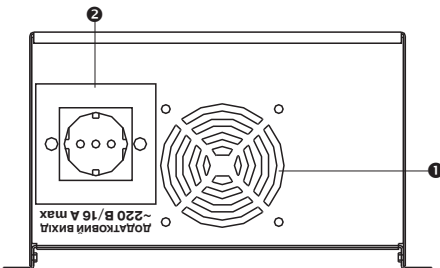


Fig. 2. WM-5 top panel

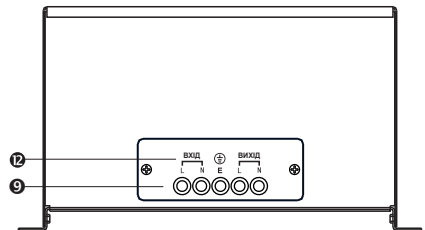


Fig. 3. WM-5 lower panel

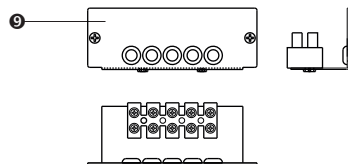


Fig. 4. WM-5 terminal box when opened

Wall-mounted Automatic Voltage Regulator

WM-5/130-320V  
WM-10/130-320V

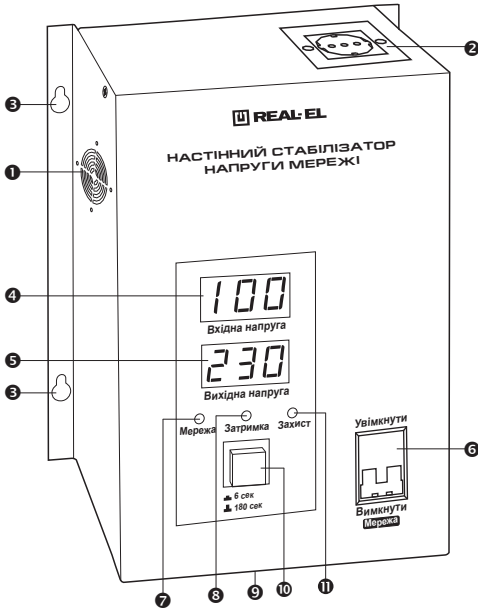


Fig. 5. WM-10 front panel

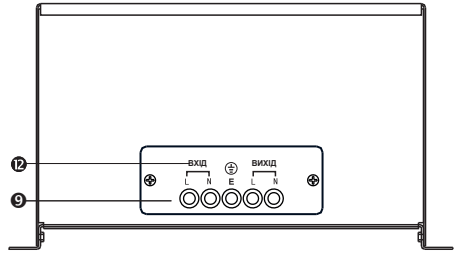


Fig. 6. WM-10 lower panel

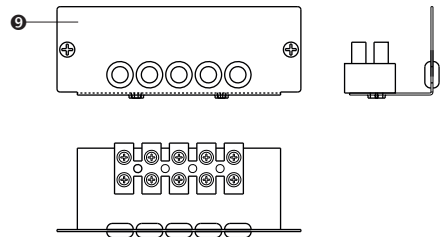


Fig. 7. WM-10 terminal box when opened

Display indicating table

Mode	Input voltage display	Outut voltage display
Turn-on delay	Input voltage	Countdown time
Overvoltage protection	"-H-"	"000"
Extra low voltage protection	"-L-"	"000"
Overheating protection on overload	"-t-"	"000"

5. APPLICATION

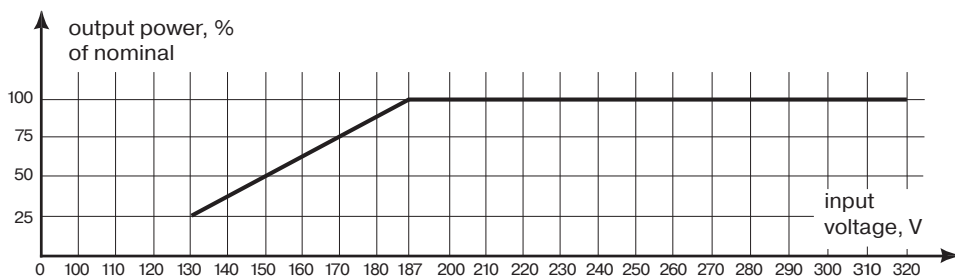
Automatic voltage regulator (AVR) is designed to provide various equipment with high-quality stable power supply in conditions of significant and continuous deviations of mains voltage of rated and protecting consumers-devices against overload and influence of high frequency interferences.

6. INSTALLATION

**Attention!** Before turning on the AVR, make sure that all consumers-devices connected to it are turned off.

• Before installing the AVR, please make sure that total power of all voltage consumers is lower than AVR power. Taking into account the starting load and power factor of voltage consumers, it is necessary to apply power margin factor of 1.2–1.5; for such equipment as air conditioners, fridges and other electric motors 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!**

- Consumer devices should be connected to the AVR when it is off.
- Connect AVR to the home 220 V power supply network in accordance with the diagram ② and turn it on with switch ⑥. The digital indicator ⑤ will display the countdown time to start the AVR.
- In case of correct operation, the digital indicator ④ will display the voltage level on AVR output, i. e. the power supply network voltage, and digital indicator ③ will display output voltage, indicator ⑦ will be active. Connected devices-consumers can be turned on after this only.
- If power supply voltage is beyond the operation range (130 - 320 V), AVR turns off the load (a device connected to it) automatically, indicator ④ will display "L" or "H", indicator ⑩ will blink once a second.

**Attention! If AVR is not used for a long time, it is recommended to disconnect AVR and all connected devices-consumers from the power supply network.**

## 7. PAUSE FUNCTION

- This function is designed to protect a connected device with the use of turn-on delay of the AVR after the power supply resumption. After turning on or the power supply resumption, AVR will turn on after 6 or 180 sec (at this time indicator ⑤ will display the countdown time to its turning on, see the display indicating table on page 4).

**8. PROTECTION FUNCTION AGAINST HIGH AND LOW INPUT VOLTAGES, OVERLOAD AND OVERHEATING**

- The AVR is equipped with automatic protection circuit against high and low input voltages. When the power supply voltage exceeds the operating range (130 – 320 V), the load is disconnected automatically and indicator ④ displays “L” or “H”, indicator ① blinks once a second. After normal voltage resumption the AVR is turned on automatically and resumes its operation.
- The AVR is equipped with the transformer restorable thermal protection, which protects the device against overload and overheating. The built-in transformer thermal protection is activated when the temperature is 120 °C and the load is disconnected (indicator ④ displays “t”, indicator ① blinks once a second). The AVR is turned on automatically after its cooling.

**9. TROUBLESHOOTING**

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
The AVR does not start.	1. The switch ⑥ is off. 2. There is no voltage in the power supply network.	1. Turn on AVR once again. 2. Make sure that power supply is available.
The AVR is turned on, but there is no output voltage.	The AVR is out of order.	Address to the service center to solve the problem.
The AVR often produces clicking sounds.	Input voltage is unstable.	The AVR regulates output voltage.
The AVR has disconnected the load. Indicator ④ displays “L”, “H” or “t”, indicator ① blinks.	Input voltage is beyond possible regulation range of 130-320 V; temperature protection actuated.	When input voltage is normalized or after cooling, the AVR turns 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 by yourself.

## 10. TECHNICAL SPECIFICATIONS

Parameters	Models	WM-5	WM-10
Output power, VA		8,000	13,000
Maximum output power, W*		5,000	10,000
Protection actuating current, A		25	50
Input voltage, V		~130 – 320	
Input frequency, Hz		50	
Output voltage, V		~230 ± 8 %	
Output frequency, Hz		50	
Switching time, ms		≤ 10	
Indication		digital	
Short circuit and overload protection		automatic circuit breaker	
Environment temperature, °C		0 – 40	
Relative humidity, %		up to 70 (without condensation)	
Dimensions, mm		271 × 357 × 150	320 × 425 × 160
Weight, kg		13.0	20.0

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

**Notes:**

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





Models: **WM-5/130-320V, WM-10/130-320V**

Manufacturer: ENEL GROUP OU, Katusepapi tn 6, Lasnamäe linnaosa, Tallinn, Harju maakond, 11412, Estonia. Made in China.

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