Sollatek

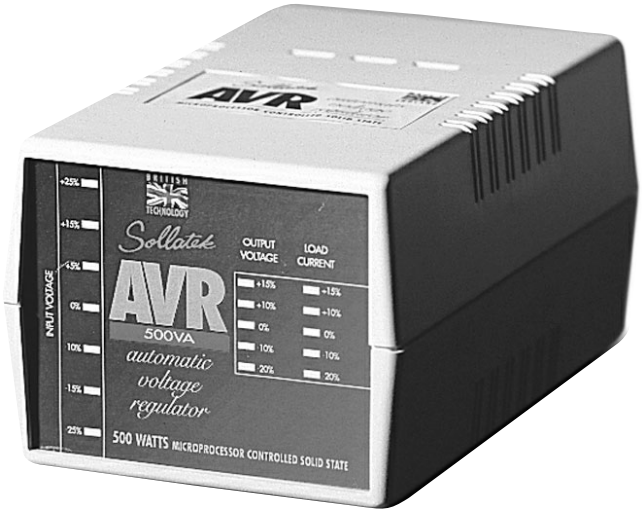
New logo for

Sollatek™

Automatic Voltage Regulator

The AVR Range

Microprocessor Controlled Regulator



IMPORTANT: This manual contains important safety instructions.
Keep this manual handy for reference.

CONGRATULATIONS on your choice in selecting the Sollatek Automatic Voltage Regulator (AVR). We trust that the unit will give you years of trouble free operation.

Contents

Before using the AVR please read all instructions carefully.
Keep these instructions for future reference.

Safety

- All equipment designed and manufactured by Sollatek (UK) Ltd complies with the latest safety codes of practice. You should still follow all safety instructions and use caution when installing and operating electrical equipment.

- To avoid the risk of shock, DO NOT expose this equipment to rain, moisture or liquid spillage.

- Before attempting to use the AVR (Automatic Voltage Regulator) ensure that the total loading of your equipment does not exceed the maximum rating of the AVR. To check the rating of your AVR, refer to the label on the back of the unit.

- For your own safety, do not insert any object into the ventilation slots.

- Do not attempt to dismantle the AVR, to do so will invalidate the guarantee. There are no user serviceable parts inside.

- If the external flexible cable or cord of this transformer is damaged, it must be replaced by a qualified person in order to avoid a hazard.

!Most computers power supplies have irregular current wave forms. The Sollatek AVR can misinterpret this waveform, resulting in an inaccurate load LED display. It is therefore important not to overload the AVR by checking the maximum current consumptionof your PC and ensuring that this is below the rating of the AVR.

Description

As both high and low mains voltage can damage your electrical equipment, the Sollatek AVR is designed to monitor and correct the incoming supply continuously.

If the mains voltage rises or drops, the AVR will stabilise the output to ensure that the voltage reaching your equipment remains constant at 230V ±4% (or 110V ±4% for US voltage systems), within the operating range of the unit. see below.

The AVR also protects your electrical equipment against power spikes and surges. By using the AVR you will ensure a stable voltage supply to your equipment.

Depending on the rating of the AVR, it is suitable for all electrical and electronic appliances, including:
Computers, TV and Hi-fi, Video, Satellite Receivers, Laboratory electronic instruments, Coolers, Freezers, Fridges, Air conditioners and any other electric and/or electronic appliance.

The input/output voltages characteristics of the AVR are illustrated in the table shown;

The Sollatek AVR's model numbers indicate the input voltage, output voltage and the current rating. For example;

AVR02-22 is rated at 2Amps and the 22 indicate 220V input and 220V output.

Similiarly;
AVR02-11 indicates a unit rated at 2Amps and 110V input and 110V output.

While;
AVR02-21 indicates a unit rated at 2Amps with input of 220V and output of 110V.

The Sollatek AVR has a modern state of the art 7 LED display to indicate the state of the input at all times and 5 LEDs to indicate the output voltage going to your load. The Loading on the AVR is indicated by a further 5 LEDs.

AVR Input vs. Output voltage range

Input	Output
155	213
165	227
175	222
185	235
195	229
205	222
210	227
215	233
225	225
235	235
240	240
245	226
255	235
265	226
275	234
285	243
290	247

Specifications Table

SPECIFICATIONS								
Model	Amps	Voltage	VA	Socket	Weight	Dims	Case Type	
AVR01-22	1	230	230	UK,FR,SCH,UK5	4	193 x 100 x 124	A	Plastic (ABS)
AVR02-22	2	230	460	UK,FR,SCH,UK5	5	193 x 100 x 124	A	Plastic (ABS)
AVR04-22	4	230	920	UK,FR,SCH,UK15	7	277 x 133 x 161	B	Plastic (ABS)
AVR05-22	5	230	1150	UK,FR,SCH,UK15	11	277 x 133 x 161	B	Plastic (ABS)
AVR07-22	7	230	1610	UK,FR,SCH,UK15	12	277 x 133 x 161	B	Plastic (ABS)
AVR10-22	10	230	2300	UK,FR,SCH,UK15	14	336 x 212 x 179	D	Metal
AVR01-22ER	1	230	230	UK,FR,SCH	4	193 x 100 x 124	A	Plastic (ABS)
AVR02-22ER	2	230	460	UK,FR,SCH	5	193 x 100 x 124	A	Plastic (ABS)
AVR04-22ER	4	230	920	UK,FR,SCH	7	277 x 133 x 161	B	Plastic (ABS)
AVR05-22ER	5	230	1150	UK,FR,SCH	12	290 x 205 x 145	C*	Metal
AVR10-22ER	10	230	2300	UK,FR,SCH	16	336 x 212 x 179	D	Metal
AVR02-11	2	110	220	US	3	193 x 100 x 124	A	Plastic (ABS)
AVR04-11	4	110	440	US	4	193 x 100 x 124	A	Plastic (ABS)
AVR05-11	5	110	550	US	5	193 x 100 x 124	A	Plastic (ABS)
AVR07-11	7	110	770	US	7	277 x 133 x 161	B	Plastic (ABS)
AVR10-11	10	110	1100	US	11	277 x 133 x 161	B	Plastic (ABS)
AVR20-11	20	110	2200	US	14	336 x 212 x 179	D	Metal

* One mains outlet only

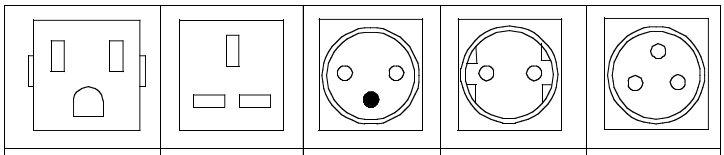
Model	Amps	Voltage	kVA	Weight	Dims
AVR20-22	20	230	4.6	40	347 x 215 x 520
AVR30-22	30	230	6.9	55	347 x 215 x 520
AVR40-22	40	230	9.2	60	347 x 215 x 520
AVR50-22	50	230	11.5	82	785 x 460 x 450
AVR75-22	75	230	17.2	100	785 x 460 x 450
AVR100-22	100	230	23.0	114	785 x 460 x 450
AVR250-22	250	230	57.5	350	1200 x 680 x 1030
AVR300-22	300	230	69.0	382	1200 x 680 x 1030
AVR350-22	350	230	80.5	397	1200 x 680 x 1030
AVR400-22	400	230	92.0	423	1200 x 680 x 1030
AVR30-11	30	110	3.3	36	347 x 215 x 520
AVR40-11	40	110	4.4	40	347 x 215 x 520
AVR50-11	50	110	5.5	50	785 x 460 x 450
AVR75-11	75	110	8.2	56	785 x 460 x 450
AVR100-11	100	110	11.0	65	785 x 460 x 450
AVR250-11	250	110	27.5	127	1200 x 680 x 1030
AVR300-11	300	110	33.0	186	1200 x 680 x 1030
AVR350-11	350	110	38.5	204	1200 x 680 x 1030
AVR400-11	400	110	44.0	287	1200 x 680 x 1030

Technical Specifications

The following table illustrates the technical specifications for the entire Sollatek AVR range.

Technical Specifications	230V	115V
Stabilisation Input Output	 -27% to +21% (161-281V) + 4% (221-239V)	 (81-140V) (110-120V)
Frequency	50/60Hz 45-60Hz continuous Down to 30Hz for 1-2 seconds	
Response Time	Within 0.1 second. Up to 1250V per second	

The following diagram illustrates the various sockets available.



Socket Availability

Unpacking & Inspection

After removing the polystyrene protective packaging from the AVR unit, inspect the ventilation slots to ensure that they are free from all obstruction. Use a vacuum cleaner to dislodge any obstructions.

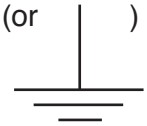
Retain the box and packaging material to return the AVR unit in the unlikely event of its operational failure.

Installation

WARNING: This appliance must be earthed.

If your mains outlet only has a 2-pin socket, consult a qualified electrician.
If you are unfamiliar with installing electrical equipment consult a qualified electrician.
If a suitable electrical plug is not already fitted to the AVR unit, one should be fitted as follows:

- The wire coloured BLUE must be connected to the terminal marked ‘N’ for Neutral.
- The wire coloured BROWN must be connected to the terminal marked ‘L’for Live.
- The wire coloured YELLOW and GREEN must be connected to the Terminal marked ‘E’ (or) for Earth.



Locating the AVR: Although the unit does not produce excessive heat, ensure that it is positioned so that a free flow of air allows the unit to cool.

Do not install inside a closed cupboard and do not allow papers or other materials to be piled on top.

OPERATING INSTRUCTIONS:

Follow the procedure below to connect your AVR and appliance;

1. Turn your equipment OFF and unplug it from the wall socket.

2. Ensure that the switch on the AVR is OFF.

3. Plug the AVR into the wall socket and plug your equipment into the AVR.

4. Turn the power ON at the wall socket.

5. Turn the AVR switch ON.

6. Turn your equipment ON.

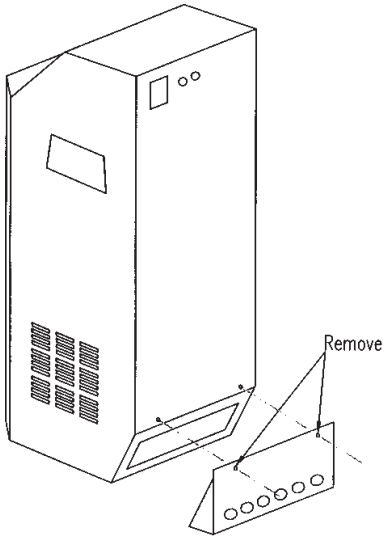
7. The AVR will immediately relay power to your equipment.

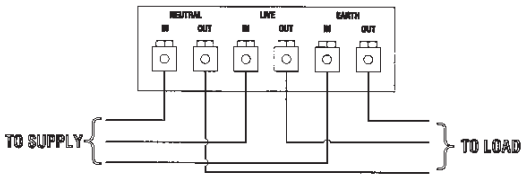
8. The LEDs give you a visual indication of the input and output voltage.

9. If the mains voltage is 230V (ie normal) the green 0% input voltage and green 0% output voltage LEDs will both be lit.

10. Any variation to the incoming mains voltage, up or down, will be monitored and adjusted by the AVR. For full details refer to the Operating Sequence.

The AVR20-22,AVR30-22 & AVR40-22, AVR30-11 and AVR40-11 are enclosed in the Tower case. Installation is made simple by removing the protective cover from the back of the unit. All connections are marked on the internal terminal connection board.

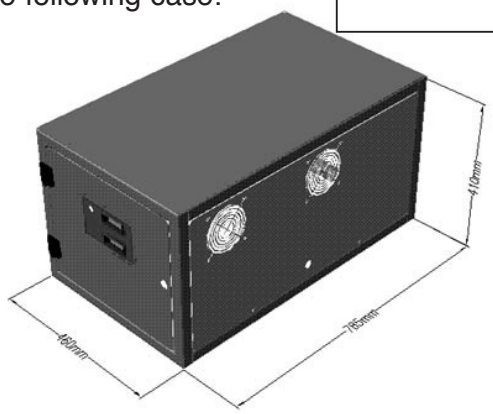


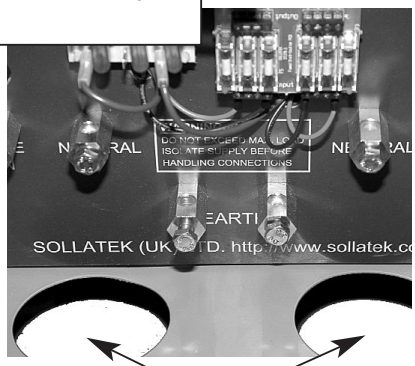


Internal terminal connection board

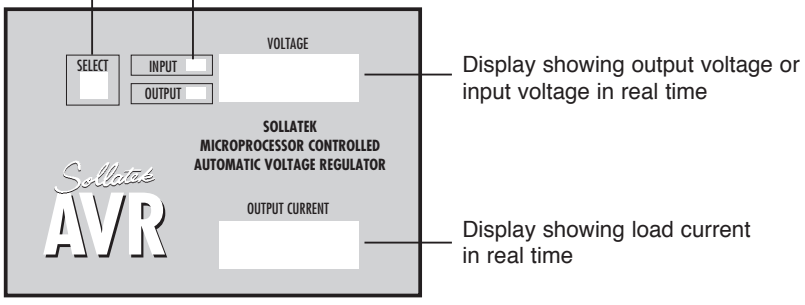
- Please ensure that you use correctly rated cable.
- Input cable should be rated at 1.5 times the output current.
- Increase the cable size for better regulation.
- This unit must be earthed.
- This unit requires a neutral.
- A suitable circuit breaker (at least 1.5 times unit's rating in Amps) should be connected on the input.

The AVR50-22, 75-22 and 100-22 are enclosed in the following case:

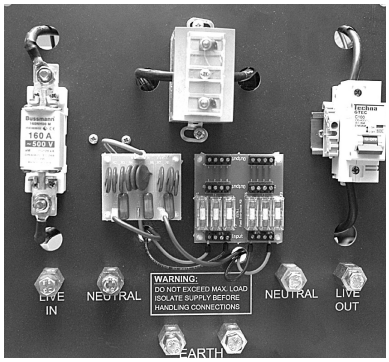




Cable entry holes.

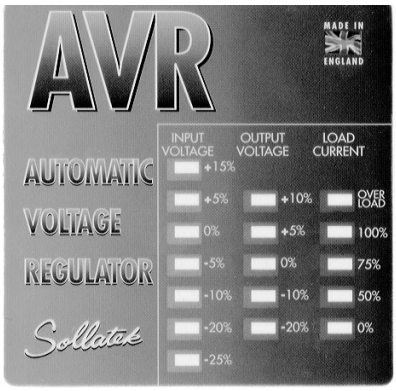


DigitalVoltage/Current display



Internal terminal connection board

Operating Sequence



1. Input voltage increase is displayed in steps of +5% and +15% and input voltage decrease is displayed in steps of -5%, -10%, -20% and -25%.

The AVR indicates the plus or minus voltage variation by lighting the relevant LED.

2. Within this range, the AVR will compensate by stepping up or stepping down the output voltage to maintain it's norm of 230V ± 4%, which will be indicated by the green 0% LED.

3. If however the input voltage falls below -27%, the AVR will increase the output voltage accordingly. The amount to which the voltage is lowered will be indicated by the yellow -10% or red -20% LED.

4. Equally, if the input voltage rises above +18% (272V) the AVR will decrease the output voltage, indicated by the +5% or +10% LED.

5. If the incoming voltage supply drops below the operating range of the AVR (110V or 55V for 110V unit) it will shut down the output to the appliance and the 0% Load current LED will be lit. When first switching on the AVR, it will require a minimum of 175V to power up. If the input voltage is below this limit, the AVR will not power up the load and the 0% Load current LED will be lit.

6. Stabilisation will be automatically reinstated to your appliance as soon as the input voltage comes within the operating range of the AVR.

7. The Load display on the output of the AVR indicates the loading of the AVR. For example the 50% Load LED will be lit if the load takes 0.5 Amp when connected to an AVR250 (250VA or 1Amp). The Sollatek AVR will accept up to 110% load (1.1Amps on the AVR250). However prolonged overload could result in damage and should be avoided. Over 110% loading will cause the AVR trip out and switch the appliance off. To correct this switch the AVR off. Remove the overload and restart the AVR.

Troubleshooting

Symptom	Possible cause	Remedy
The unit does not switch on. None of the LEDs are lit.	1) The fuse has blown. 2) The mains switch is not on. 3) No power is available on the input.	Change the fuse with a fuse of the correct rating. Ensure that the load current is not exceeding the capacity of the unit. If after changing the fuse the unit is still not functioning return the unit for inspection by your dealer. Ensure that you are using the correct voltage (i.e. 230V or 110V)
The unit appears to be functioning normally but the load is not being switched on.	Load is not plugged in. Load is not switched on. Load fuse has blown. Overload condition.	1) Check that the load is plugged-in. 2) Check that the input voltage is within the input range of the AVR. 3) Check that the Load is switched on. 4) Check the loading of the AVR. Make sure the load doesn't exceed the capacity of t he AVR.
The unit appears to be functioning but the output voltage is persistently low.	The mains input is too low; 1) Due to continuous brown-out 2) The unit is rated at 230V and the incoming supply is 110V	1) Wait for the incoming supply to rise to the starting voltage of the AVR
The AVR continuously performs self-test. If it finds a fault the LEDs will continously light from top to bottom repeatedly in one of two patterns.	1) Possible internal fault. The fault could be temporary or permanent. 2) Very bad mains waveform or frequency.	1) Ensure that the load current does not exceed the rating of the AVR. 2) Turn the appliance off then switch AVR off. Restart the unit as per operating instructions. 3) If the above doesn't solve the problem please return the unit to a Sollatek service centre.
AVR blows fuses. Even though the load LEDs don't show overload.	Most computers power supplies have irregular current wave forms. The Sollatek AVR can misinterpret this waveform, resulting in an inaccurate load LED display. It is therefore important not to overload the AVR by checking the maximum current consumption of your PC and ensuring that this is below the rating of the AVR.	Reduce the loading. Use a larger AVR.

- Please consult the above chart before contacting your supplier. Ensure that you have followed the operating instructions carefully.
- There are no user serviceable parts internally.
- Disassembling the unit, opening the lid or tampering with the unit is unsafe for unqualified users and will render the warranty invalid.

Guarantee

Sollatek (UK) Ltd guarantee that if within 2 years of purchase this appliance fails due to faulty workmanship or materials we will repair or replace it (at our discretion) free of charge provided that:

- The appliance has been correctly installed and used within the electrical range as specified on the appliance nameplate.
- The appliance has been used in accordance with the operating instructions.
- There has been no attempt to open the unit for any reason whatsoever.
- The unit is returned to Sollatek or a Sollatek agent in good condition.
- Sollatek shall not be liable under the terms of this guarantee for any material fault or damage as a result of failure of this appliance.
- This guarantee does not affect your statutory or Common Law rights.

Warranty & Returns

If your AVR unit should need repair, the quickest and simplest way is to return it to your dealer or to a Sollatek Service Centre or direct to the nearest Sollatek office.
IMPORTANT : Before returning a unit to a Sollatek Service Centre, contact the returns department to obtain a returns number. You will be asked for the following information which you should have ready;

Your Name, Address, Telephone, Fax (If Available), Email (If Available)
Date Purchased, Where Purchased
Serial Number, model number, Local voltage and type of load.
Description of Fault

Once you have the returns number, ensure that the unit is securely packed enclosing a short note with details as above and mark the unit clearly with the returns number. Remember also to add your name and address.
Complying with the above will ensure that your unit will be treated promptly and efficiently. Without a returns number it will not be possible to trace a unit or check progress of repair of the unit.

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Sollatek AVR

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