AVANSA®
LITHIUM

Pure Sine Wave Backup Power Supply

Professional power source for electrical and electronic equipment

MODELS

300W/500VA-12VDC

500W/800VA-12VDC

700W/1000VA-12VDC

1050W/1500VA-12VDC

User Manual

Thank you for purchasing an uninterruptible power supply (UPS) from the **AVANSA Lithium** series.

Please read this manual carefully before first use.

This device combines the functions of:

- a DC/AC inverter,
- a UPS power source,
- and an automatic battery charger.

The device has an advanced menu that allows:

- selection of the battery type (LiFePO4, AGM, GEL),
- adjustment of the charging voltage and current.

The integrated toroidal transformer provides **high efficiency and low no-load consumption**.

A fast 32-bit microprocessor ensures precise and reliable operation. The colour LED display clearly shows the operating status: input/output voltage, battery level, charging, etc. This type of UPS generates a **pure sine wave voltage**, suitable for any type of electrical load. Fast switching from mains power to UPS operation ensures an uninterrupted power supply to the connected devices. Intelligent control of the cooling fan according to the actual temperature of the device and the inverter load. Built-in AVR mains voltage regulator. **Compatible with maintenance-free LiFePO4, AGM or GEL batteries.**

Safety warnings

- Do not cover the ventilation openings. Do not keep the power source in a room with high humidity!
- Provide at least **30 cm of free space** around the power source for air circulation. The power source must be installed in an easily accessible place, with a minimum of 30 cm of free space around the housing to ensure air circulation; otherwise the device may overheat. To reduce the risk of fire or electric shock, make sure that the existing wires are in good condition and correctly sized (cross-section, length, etc.). Do not operate the power source with damaged or substandard wiring.
- This device contains components that may produce sparks, for example when connecting the cables to the battery terminals. To avoid fire and/or explosion, do not install the device in rooms containing flammable materials or substances. This includes any area where petrol-powered machinery or tanks of gas or other fuel are present.
- Do not connect the AC output to the building's electrical installation.
- Do not use the device near flammable materials.
- Do not open the housing of the power source – it contains no user-serviceable parts. Attempting to repair the device may result in electric shock or fire. The capacitors inside the device remain charged after the power has been disconnected. To reduce the risk of electric shock, disconnect both the AC and the DC power supply before carrying out any maintenance or cleaning. Switching the power source off with the button does not reduce the risk.
- The AC power plug must always be connected to the power supply (mains socket) to ensure correct earthing of the device. Failure to earth the power source exposes the user to the risk of electric shock. The AC power cable must never be connected to a generator. Such a connection could cause more damage than a short circuit. The AC output of the power source must never be connected to the AC input.
- Disconnect the AC and DC power before cleaning or servicing.
- Always ensure correct earthing of the power cable.
- Do not use the UPS for medical or life-support equipment.

- Do not exceed the rated power of the device. Do not overload the device. Operating at a load higher than the rated load may damage the UPS. The power source you purchase must have approximately 15–25% more power than the connected load.

Switching the UPS on

1. Remove the device from the packaging and check that the housing is intact.
2. Connect the battery correctly to the terminals, observing the polarity:
   - red to “+”,
   - black to “–”.
3. Connect the power cable to an earthed mains socket (230V AC).
4. Switch the device on by holding the **ON/OFF** button for approximately 3 seconds (an audible signal will sound).
5. Connect the loads to the output sockets and switch them on one at a time.

Switching the UPS off

1. Switch off all connected devices one by one.
2. Hold the **ON/OFF** button for 3 seconds to switch off the inverter.
3. Unplug the mains cable from the socket.
4. Disconnect the battery.

Information on connecting gas heating boilers to the electrical network!

Remember to keep the power plug connected to a 230 V AC socket while the power source is in operation. If the power plug is not connected to a 230 V AC socket, the input of the power source will be disconnected from the neutral (N) and protective earth (PE) conductors of the user's electrical installation. Some devices (for example, the central heating system or the boiler's microprocessor) will not work properly or will not start at all in this situation. Do not use extension cords with surge protection between the UPS and the mains or between the UPS and the loads.

Notes

1. Be careful when connecting the battery; reverse polarity voltage will permanently damage the power source and void the warranty.
2. Do not overload the device beyond its rated power. When connecting refrigerators, freezers and other devices/inductive devices that draw more energy at start-up, do not exceed 30% of the total rated power of the power source.
3. Do not connect the device outdoors; avoid contact with water or moisture.
4. Remember to place the power source in a ventilated location with at least 30 cm of clearance on all sides of the housing.
5. If you notice any malfunction/damage of the power source, contact the manufacturer's service centre.
6. After switching on the power, test the device for correct operation with a load (following the safety notes and the information in the manual). Perform the test by disconnecting the mains voltage using the phase fuse or using the red button to set it to position “0” (if located on the housing).
7. Unplugging the plug from the socket while the power source is operating disconnects the earth and neutral conductors.
8. Do not use surge protection devices (with fuses or induction coils on the sockets) at the input or output of the power source, as they may cause a short circuit of the power source.

ATTENTION! Touching the battery terminals during operation is prohibited.
DANGER OF ELECTRIC SHOCK!

Remarks

1. The 230 V AC output of the power source is intended for directly supplying the connected devices in a stand-alone configuration. It is prohibited to connect the AC output to the existing electrical wiring (even through residual current devices), in particular to phase circuits, the neutral (N) and residual current circuits. Such a connection may result in reverse voltage being applied to the inverter output. Damage caused by such a connection will void the warranty!
2. If a temporary interruption of the AC mains voltage occurs in the user's home installation, the power source will switch to battery power for the duration of the interruption. This situation does not damage the power source itself or the connected devices.
3. If a momentary interruption of the AC voltage occurs in the user's home installation, the power source will switch to battery power for the duration of the interruption. This situation is not harmful to the power source itself or to the connected devices.
4. The output voltage of the power source may differ from the input voltage.

Description of the display and buttons

S1: MENU
S2: SET
S3/S4: navigation
Reset: press and hold buttons S1 + S2 simultaneously for 3 seconds

Control panel and LED display

Main symbols:

- **AC MODE:** mains operation
- **INVERTER MODE / CHARGING:** battery operation / charging
- **FAULT:** system error
- **OVERHEATING:** overheating
- **OVERLOAD:** overload
- **INPUT/OUTPUT:** input/output voltage
- **BATTERY/LOAD:** battery level / load
- **CHARGING CURRENT:** charging current
- **VOLT CYC/FLO/CUT/WAR/BAT TYPE:** parameters and battery type

S1: Press the menu button repeatedly to show the device data on the display one by one (from 1 to 10). Holding the menu button for approximately 3 seconds returns the displayed data to the basic screen. Repeatedly pressing the menu button cycles through menus 5 to 10, allowing you to view or change the desired parameters.

S2: When the data from items 5 to 10 is shown on the display, you can enter a new value by pressing button S2.

S3: Press this button to increase the value of the displayed data.

S4: Press this button to decrease the value of the displayed data.

Resetting the settings: Press and hold buttons (S1) and (S2) simultaneously for approximately 3 seconds; if “SUC” appears on the display, the reset to factory settings has been completed successfully. After the reset, all values return to the factory settings (DEFAULT) and the battery type is AUTOMATICALLY set to type LEA (AGM).

Setting the charging parameters

1. Press (S1) to show the information (items 5 to 10 – those requiring a change of settings).
2. Briefly press (S2) to edit. The value will flash to indicate that it can be changed.
3. Briefly press (S3) or (S4) to increase or decrease the value.
4. Briefly press (S2) to exit editing.

The device allows you to set: the charging current, the cyclic charging voltage, the maintenance voltage of the charged battery, the cut-off voltage of the discharged battery, the warning voltage of the discharged battery and the battery type (lead-acid and LiFePO4). The default settings of the charging voltage, charging current and battery type are suitable for a 12V LiFePO4 battery with a capacity of 100Ah.

Description of the symbols on the device display

1. AC MODE: Lit steadily – the device is operating in AC line mode.

2. INVERTER MODE and charging: Flashing – the device is operating in AC line mode and the battery is charging. **Off** – the device is operating in AC line mode and the battery is fully charged. **Steady** – the device is operating in battery mode.

3. FAULT: Lit steadily – a fault has occurred in the device. If a fault occurs, it is recommended to switch off the device and consult the user manual for further instructions or contact the manufacturer.

4. Overheating: Lit steadily – the device is overheated. Note: If the overheating icon is lit, switch off the device immediately.

5. OVERLOAD – inverter overload, too much power drawn by the output devices.

6. The device display switches automatically. When INPUT is lit, the display shows the current AC input voltage (from the mains). When OUTPUT is lit, the display shows the current AC output voltage of the internal inverter.

7. BATTERY mode: Shows the remaining battery capacity (in percent) and its current voltage. This information is displayed alternately every 5 seconds. **LOAD mode:** Shows the current load percentage of the device, i.e. what percentage of its maximum power is being used by the loads connected to the output.

8. CHARGING CURRENT: A flashing icon indicates that the standard charging current can be set. In this situation, the user can change the charging current value.

9. MENU ICON: Always lit.

10. CYCLIC VOLTAGE (VOLT CYC): A flashing icon indicates that the cyclic charging voltage is shown in field (7).

11. FLOAT CHARGING VOLTAGE (VOLT FLO): A flashing icon indicates that the float charging voltage is shown in field (7).

12. LOW VOLTAGE CUT-OFF (VOLT CUT): A flashing icon indicates that the battery low-voltage cut-off value is shown in field (7).

13. LOW VOLTAGE WARNING (VOLT WAR): A flashing icon indicates that the battery low-voltage warning value is shown in field (7).

14. BATTERY TYPE: A flashing icon indicates that the battery type accepted by the device is shown on the display. LEA: indicates that the device is compatible with a lead battery. PO4: indicates that the device is compatible with a LiFePO4 battery.

NAME	DESCRIPTION
Main round button	Pressing and holding the button for more than 2 seconds switches the UPS on or off.
Power cable	Connecting the plug to an electrical socket allows the battery to be charged and the output devices to be powered via the built-in voltage regulator.
Socket or terminal block for connecting devices	Connect the devices you want to power to the sockets or to the terminal block. The maximum power supported by one socket is 2000W. If the output devices have a higher rated power, connect them to the terminal block.
Cooling fan	The cooling fan starts when the UPS is operating or when the battery is charging – when the transistor temperature exceeds 45°C.
Battery connection cables	The red wire must be connected to the positive (+) battery terminal and the black wire to the negative (–) terminal. Reversing the cables will permanently damage the device.

Alarm sound

Fault type	Alarm sound description
Low battery voltage or output overload	The buzzer sounds continuously every second
Device fault or incorrect output operation	The buzzer emits a fast, sharp sound

1. Installation

1.1 After opening the packaging, inspect the device carefully. If you find any damage, contact the distributor immediately.

1.2 Instructions for positioning the device: Do not install the device upside down. Do not expose the device to direct sunlight or heat sources. Keep out of the reach of children. Protect the device from water, moisture, oil, grease and flammable substances.

1.3 Ventilation of the device. To ensure adequate ventilation, keep a distance of at least 10 cm between the fan vent and the wall or other adjacent appliances that do not generate heat.

1.4 Voltage and frequency compliance: Make sure that the voltage and frequency of the mains correspond to the rated values of the device. Information on the rated voltage and frequency of the device should be found on the housing of the device or in the technical documentation.

1.5 Earthing the device: For safety reasons, the device must be installed in a properly earthed location.

Note: If you have any doubts about the electrical installation or earthing, consult a qualified electrician.

2. Battery connection

2.1 Correct connection order. Connect the red cable of the device to the positive (+) battery terminal. Connect the black cable of the device to the negative (–) battery terminal. Note: **Connecting with incorrect polarity** (red cable to the “–” terminal and black cable to the “+” terminal) **will instantly damage the device and presents a risk of FIRE**. It may also damage the battery. For safety and correct operation, always observe the correct polarity connection order.

Technical parameters

Model					
Rated capacity		500VA	800VA	1000VA	1500VA
Rated power		300W	500W	700W	1050W
Transformer		TOROIDAL	TOROIDAL	TOROIDAL	TOROIDAL
Display		LED	LED	LED	LED
Displayed data		Load, charging, battery			
Input	Voltage	170–270 Vac			
	Frequency	45~65 Hz			
Output	Voltage	230 Vac ±3% for inverter; 190 V–245 V for AVR			
	Frequency	50/60 Hz ± 0.3 Hz			
	Waveform	Pure sine wave			
	Waveform distortion	≤ 3%			
Transfer time		≤ 4 ms			
Battery voltage		12 VDC	12 VDC	12 VDC	24 VDC
Charging current		3A/5A/10A	3A/5A/10A/15A	5A/10A/15A/20A	5A/10A/15A/20A
Cooling system		Electronically controlled fan	Electronically controlled fan	Electronically controlled fan	Electronically controlled fan
Environmental data					
Operating temperature		0–40 °C	0–40 °C	0–40 °C	0–40 °C
Humidity		10%–90% RH	10%–90% RH	10%–90% RH	10%–90% RH
Storage temperature		−15 to +45 °C	−15 to +45 °C	−15 to +45 °C	−15 to +45 °C

AVANSA voltage setting range in VDC					
Function on LCD	**Symbol**	**AGM**		**LiFePO4**	
Cyclic voltage	CYC	13.9	14.5	13.9	14.5
Sustaining voltage	FLO	13.3	13.9	13.3	13.9
Low voltage cut-off	CUT	9.8	11	10.8	11
Low voltage alarm	WAR	10.8	11.5	11.1	11.5

Warning on protecting the device against lightning

If storms or lightning are forecast, it is recommended to disconnect the uninterruptible power supply (UPS) from the mains and from other connected devices. This minimises the risk of damage to the device caused by lightning-induced overvoltages. The manufacturer is not liable for any damage to the device or for any resulting loss if caused by force majeure, such as lightning.

Disposal of used equipment

The product must not be disposed of with household waste.
Hand the equipment over to authorised collection points.
Help protect the environment and reuse resources.

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Possible problems

PROBLEM	POSSIBLE CAUSES	REMEDIES
The power source does not start, the LCD does not light up	The power button has not been pressed or was pressed too briefly	Press the power button firmly and hold it for 4 s.
	The battery is not connected	Connect the battery to the power source
	Blown fuse	Replace the fuse
	System fault	Repair
The system always remains in battery mode	Broken mains supply cable	Replace the power cable
	Blown 220V fuse	Replace the fuse
	Supply voltage level too low or too high – below 160V or above 260V	
	System fault	Repair
Intermittent acoustic signal	Power exceeded	Disconnect the additional loads
	Battery depleted	Replace or charge the battery
The system runs on battery for a very short time	Battery discharged due to excessive load, without full charging	Let the power source charge the battery for 24 hours
	Old or faulty battery	Replace the battery

Recycling

As the end consumer, you are legally obliged not to treat waste electrical and electronic equipment as unsorted municipal waste.

When you no longer wish to use this product, please do not dispose of it with household waste. As an electronic product, it may contain substances harmful to the environment, and you, as the end consumer, play a very important role in the separate treatment of waste. Please return this product to the shop where you bought it (take-back is free of charge) or to any other collection point for waste electrical and electronic equipment (WEEE).

By doing so, you will comply with the applicable laws and help preserve a clean environment.

Declaration of conformity

This product has been tested and complies with:

Directive 2014/35/EC – *on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits*

Standards:

EN 62368-1:2014+A11:2017

Information technology equipment. Safety.

Directive 2014/30/EU – *on the harmonisation of the laws of the Member States relating to electromagnetic compatibility*

Standards:

EN 55032:2015/A11: 2020, EN 55035:2017/A11:2020

EN IEC 61000-3-2:2019/A1:2021, EN 61000-3-3:2013/A2:2021

Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement

EN61000-3-2:2006+A1:2009+A2:2009, EN61000-3-3:2008

Electromagnetic compatibility (EMC). Part 3-2: Limits for harmonic current emissions (current drawn by the equipment <16 A per phase)

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