

USER'S MANUAL



UNINTERRUPTIBLE POWER SUPPLY (UPS)

SPS.ONE

SALICRU

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1. INTRODUCTION.

1.1. ACKNOWLEDGEMENT LETTER.

We would like to thank you in advance for the trust you have placed in us by purchasing this product. Read this instruction manual carefully in order to be familiar with its contents, because as much you understand and know the equipment, the higher will be the satisfaction degree, safety level and functionality optimization.

We remain at your entire disposal for any further information or any query you should wish to make.

Yours sincerely.

SALICRU

- The equipment here described **can cause important physical damages due to wrong handling**. This is why, the installation, maintenance and/or fixing of the here described equipment must be done by our staff or **specifically authorised**.
- Although no effort has been spared to guarantee that the information in this manual is complete and accurate, we are not responsible of any errors or omissions that may exist.
The images included in this document are for mere illustration and may not accurately represent the parts of the equipment showed. However, the differences that may arise will be smoothed or solved with the correct labelling on the unit.
- According to our policy of constant evolution, **we reserve the right to modify the specifications, operating or described actions in this document without forewarning**.
- All **reproduction, copy, third party concession, modification or part or total translation** of this manual or document, in any form or medium, **without the previous written authorization** of our firm, is prohibited, reserving of the complete and exclusive property right over itself.

2. INFORMATION FOR SAFETY.

2.1. USING THIS MANUAL.

The user's manual of the equipment is available in our website for the customers, being able to be on-line readed or downloaded as appropriate.

Together with the own document, it is needed to have access to the EK266*08 document as regards to **«Safety instructions»**. Read this manual carefully before making the erection or commissioning, location change, setting or any kind of handling in the equipment

The purpose of the manual is to provide the information relating to safety and explanations over the installation and operating procedures of the equipment. Read them carefully and follow the stated steps in the established order.



Compliance as regards to «Safety instructions» is mandatory, being the user the legal responsible regarding to its observance and application.

The equipments are delivered duly labelled for the correct identification of each of its parts, and together with the instructions of this user's manual allowing doing any of the commissioning and erection operations, in an easy, ordered way, without doubt.

Finally, once the equipment is installed and in operation, it is recommended to keep the documentation in a safe and easy access place, for future consults or doubts that could arise.

The following terms are used in the document to be referred to:

- **«SPS.ONE, equipment, system, unit or UPS»**.- Uninterruptible Power Supply SPS.ONE.
Depending on the context of the sentence, it can be referred to the UPS or to itself together with the batteries indistinctly.
- **«Batteries or accumulators»**.- Group or set of elements that store the electron flow through electrochemical means.
- **«S.T.S.»**.- Service and Technical Support.
- **«client, installer, operator or user»**.- Both are used and for the sense, to be referred to the fitter and/or operator, who will make the corresponding actions, being able to fall in that person the responsibility of making the respective actions when acting in the name or on behalf of himself.

2.1.1. Conventions and used symbols.

Some symbols can be used and shown in the equipment, batteries and/or user's manual context.

For more information, see section 1.1.1 of EK266*08 document relating to **«Safety Instructions»**.

3. QUALITY AND STANDARD GUARANTEE.

3.1. DECLARATION OF THE MANAGEMENT.

Our target is the client's satisfaction, therefore this Management has decided to establish a Quality and Environmental policy, by means of installation a Quality and Environmental Management System that becomes us capable to comply the requirements demanded by the standard **ISO 9001** and **ISO 14001** and by our Clients and concerned parts too.

Likewise, the enterprise Management is committed with the development and improvement of the Quality and Environmental Management System, through:

- The communication to all the company about the importance of satisfaction both in the client's requirements and in the legal and regulations.
- The Quality and Environmental Policy diffusion and the fixation of the Quality and Environment targets.
- To carry out revisions by the Management.
- To provide the needed resources.

3.2. STANDARD.

The **SPS.ONE** product is designed, manufactured and commercialized in accordance with the standard **EN ISO 9001** of Quality Management Systems and certified by the organism SGS. The **CE** marking shows the conformity to the EEC Directive by means of the application of the following standards:

- **2006/95/EC** of Low Voltage Safety.
- **2004/108/EC** of Electromagnetic compatibility (EMC).

According with the harmonised norms and certified by an external laboratory. The reference norms are:

- **EN-IEC 62040-1**. Uninterruptible power supply (UPS). Part 1-1: General and safety requirements for UPS's used in accessible areas by end-users.
- **EN-IEC 60950-1**. IT equipments. Safety. Part 1: General requirements.
- **EN-IEC 62040-2**. Uninterruptible power supply (UPS). Part 2: EMC requirements.



The manufacturers responsibility is excluded in the event of any modification or intervention in the product by the customer's side.



This is a product for both professionals and home workstations use.



Declaration of conformity CE of the product is at the client disposal under previous request to our headquarters offices.

3.3. ENVIRONMENT.

This product has been designed to respect the environment and has been manufactured in accordance with the standard **ISO 14001**.

Equipment recycling at the end of its useful life:

Our company commits to use the services of authorised societies and according to the regulations, in order to treat the recovered product at the end of its useful life (contact your distributor).

Packaging:

To recycle the packaging, follow the legal regulations in force, depending on the particular standard of the country where the equipment is installed.

Batteries:

The batteries mean a serious danger for health and environment. The disposal of them must be done in accordance with the standards in force.

4. PRESENTATION.

4.1. VIEWS.

4.1.1. Equipment views.

Figures 1 and 5 show the illustrations of the equipments according to the model. Nevertheless and as the product is in constant evolution, some discrepancies or small contradictions can arise. So, if any questions, the labels in the own equipment will prevail.

i Any values as regards to features or specifications can be checked in the nameplate. Act in your installation accordingly.

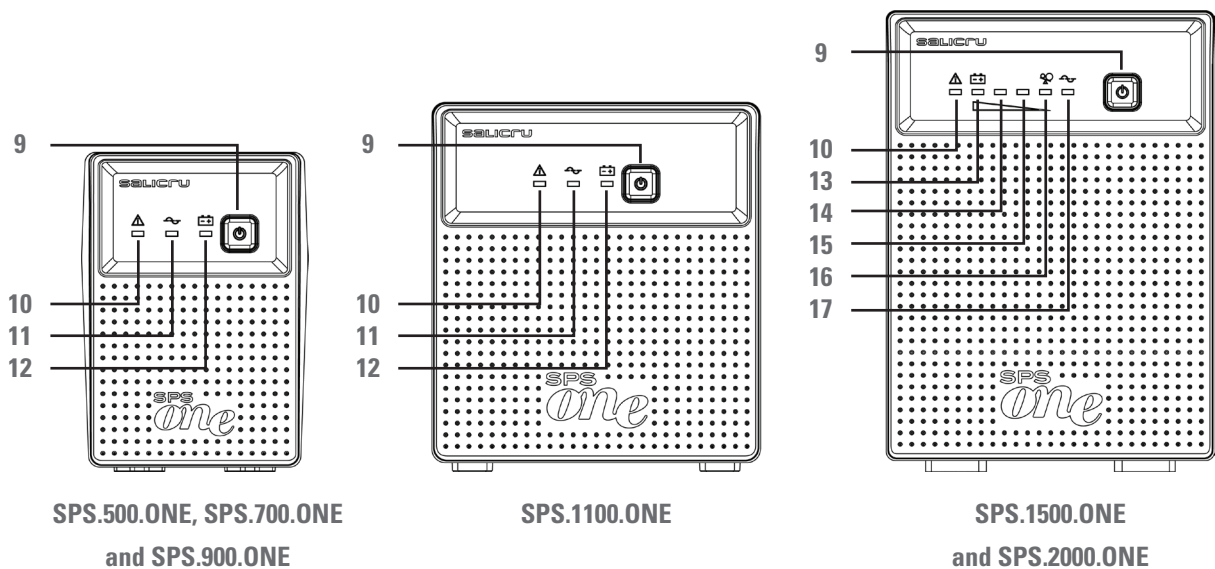


Fig. 1. SPS.ONE front views.

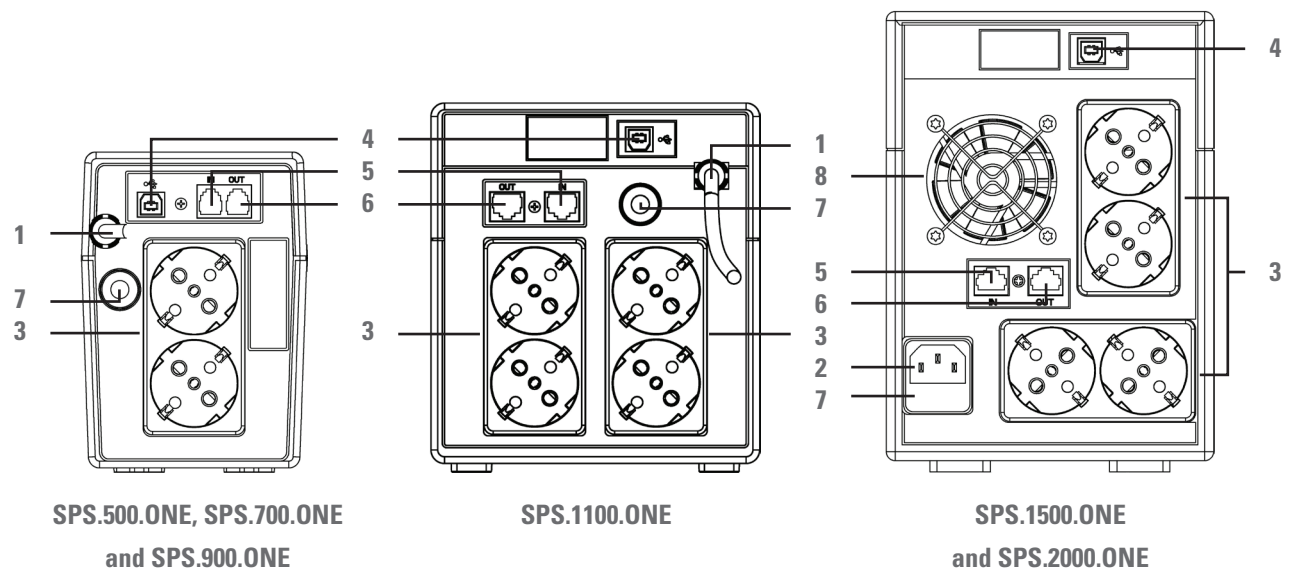


Fig. 2. Rear views with schuko outlets.

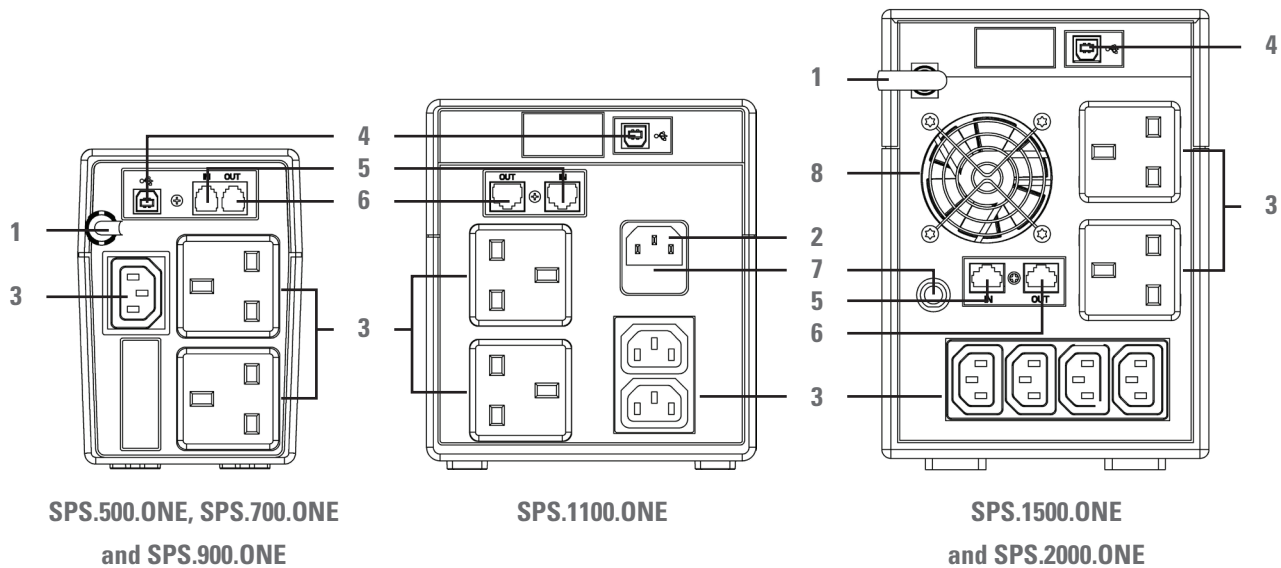


Fig. 3. Rear views with UK outlets.

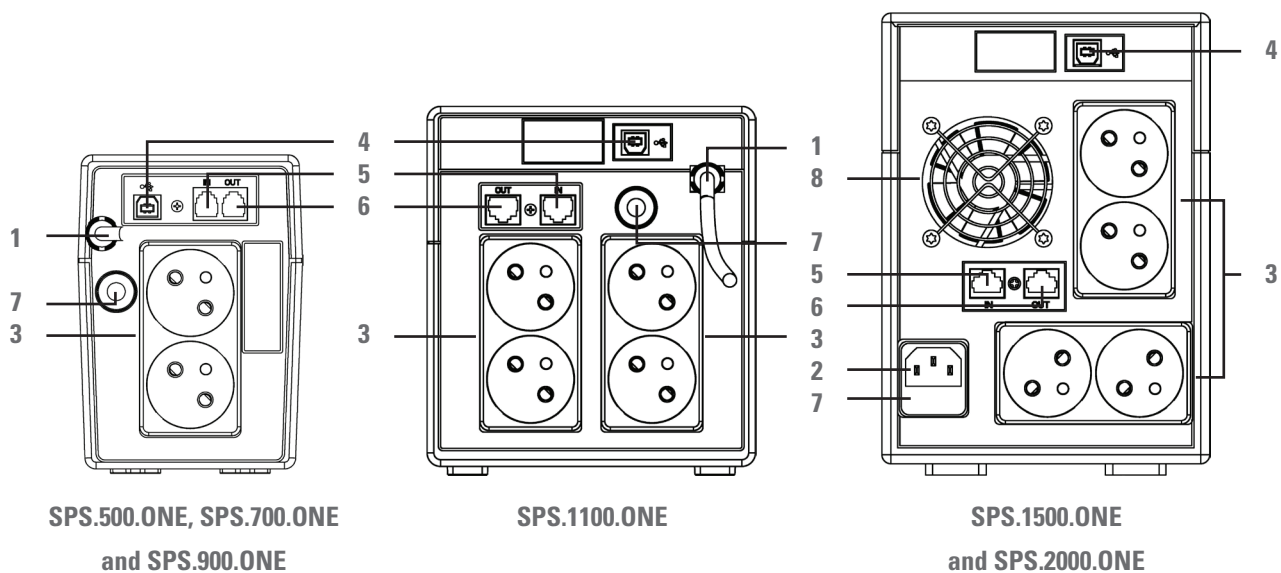


Fig. 4. Rear views with French outlets.

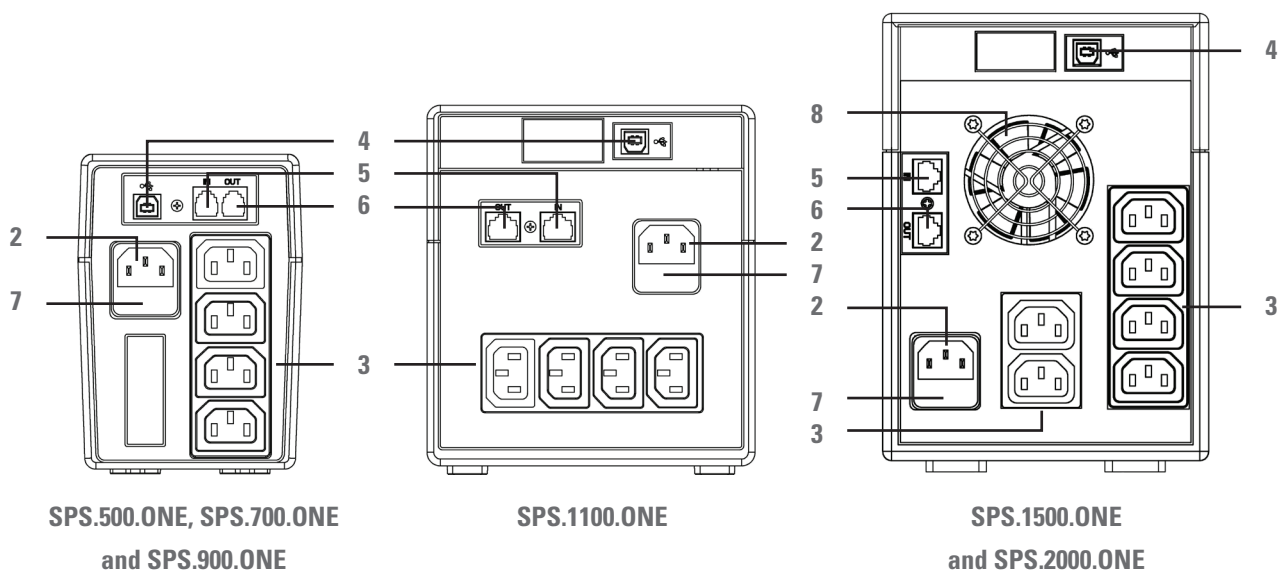


Fig. 5. Rear views with IEC outlets.

4.1.2. Legend corresponding to the equipment views.

1. Input power cord with power plug in its end.
2. IEC inlet to supply the equipment (models with no power cord 1 only).
3. Outlets.
4. USB communication port.
5. RJ input connector, to protect the overvoltages in the modem or telephone lines.
6. RJ output connector, for modem or telephone lines.
7. Input protection, depending on the model by means of thermal switch or fuse.
8. Fan of the equipment (SPS.1500.ONE and SPS.2000.ONE models only).
9. ON/OFF button of the equipment.
10. Red colour led ON. Equipment in fault mode. Also if this led is blinking with the same modulation as the acoustic alarm, it warns that the equipment is reaching the end of back up time.
11. Green colour led ON. Equipment in AC mode - output power supply comes from input mains-.
12. Yellow colour led blinking. Equipment in Battery mode -the output comes from the internal battery-.
- 13-16. Green colour led ON. Depending on the status of led 17 means:

With led **17** ON -Equipment in AC mode-, it shows the load level connected at the output from 0 to 25%, from 26 to 50, from 51 to 75 % and from 76 to 100 % respectively.

With the led **17** blinking -Equipment in Battery mode-, it shows the battery capacity level from 0 to 25%, from 26 to 50, from 51 to 75 % and from 76 to 100 % respectively.
17. Green colour led, which shows that the status of the equipment depending if it is ON or blinking:

ON, equipment in AC mode -output power supply comes from the input mains-.

Blinking, equipment in Battery mode -output power supply comes from the internal battery-.

4.2. CONTENTS.

Inside the packaging of the equipment is supplied:

- SPS.ONE equipment.
- Quick guide.
- USB communication cable.
- Power cord (models with IEC input connector 2 only).



4.3. OPERATING PRINCIPLE.

- Basically, it is an Uninterruptible Power Supply (UPS) with Line-interactive technology, which gives the best protection solution for the IT equipments or their environments for both home and professional use (small business, offices, shops,...).
- The use of the Boost&Buck AVR technology -permanent stabilization of the power supply-, gives a double advantage, a better care of the connected loads and a less use of the UPS batteries.
- In case of input mains fault, thanks to the batteries it supplies electrical power to keep the loads ON.
- In order to complete the offered safety, it also has a data line protection to protect it from any transient voltage in that line.
- The communication through the USB port between the UPS and the IT system (communication cable included) and the monitoring software which runs under Windows, Linux, Unix and Mac have to be highlighted.

4.3.1. Quality performances.

- Line-interactive technology.
- Control by microprocessor, which guarantees a high reliability.
- Boost&Buck AVR permanent stabilization.
- USB interface in any model of the series.
- Monitoring software for Windows, Linux, Unix and Mac.
- Data / phone / internet line protection.
- One ON/OFF button to make more friendly and easier its use.
- Protection against overloads, short-circuits and transients.
- Intelligent battery charger, which makes shorter the average recharging time.
- Battery recharging with the equipment OFF.
- Cold-start function, UPS can be started up through the batteries.
- Automatic restart up when input mains is restored.

5. INSTALLATION .

-  Read and respect the Safety Information, described in section 2 of this document. To obviate some of the indications stated in it, can cause a serious or very serious injuries to persons in direct contact or in the vicinity, as well as breakdowns in the equipment and/or loads connected to itself.
- Check that all data of the nameplate are the required ones by the installation.
- Once the equipment is unpacked and before proceeding, inspect and check it in order to see that everything is the right conditions. Otherwise contact with the dealer.
-  Depending on the morphology and sector or operating environment, there could be some connection and use restrictions of the equipment:

Due to its connection.



- Equipments with power cord with plug and outlets (not hard-wired).

It can be connected by personnel with no specific training, so in general the same end-user in home environments can do it.

Due to its use.

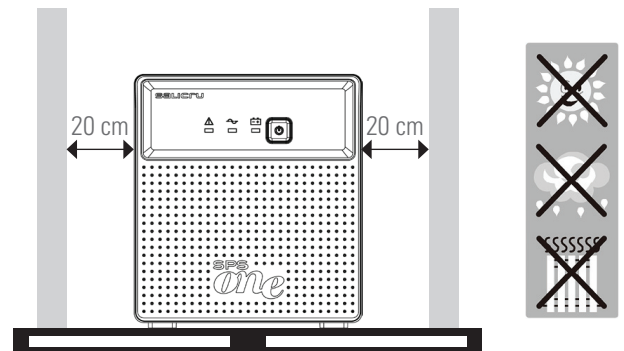
- Equipments with no terminal strip, in general the ones destined for home environments and in a lesser extent in shops and industrial or other sectors.

Personnel with no specific training can use them, just with the simple help of the user's manual.

-  Any connection of the equipment including the communication one (interface), will be done with all the switches turned off and with no voltage present (power supply switch of the UPS to «Off»).
-  Do not forget that the UPS is an energy generator, so the end-user has to take the necessary precautions against direct or indirect contacts.

5.1. LOCATION AND STORAGE CONDITIONS.

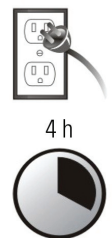
- Install the UPS in a protected area and free of excessive humidity and with a suitable ventilation.
- Locate the UPS 20cm far from other units in order to avoid interferences.
- Do not start up the equipment where the temperature and humidity exceed the allowed limits(see the technical specifications).



5.2. CONNECTING THE EQUIPMENT TO MAINS FOR FIRST TIME OR AFTER TWO MONTHS OF NO USE.

- Plug in mains power plug 1 to an AC outlet.
In those models with IEC inlet , a cable is supplied together with the equipment. Insert the IEC connector into its base **2** and the mains power plug of the other end to the AC outlet.

- To get better results, charge the batteries for 4 hours at least, before using it for first time or after a period of time longer than two months of no use.




Otherwise, the reaction of the SPS.ONE can be unsatisfactory in case of blackouts during the first hours of operation. Because its capacity of response during unexpected blackouts of the AC mains is conditioned to the stored energy in the batteries.

- The battery is charged by plugging the equipment to mains only.

5.3. CONNECTION OF LOADS.

- Plug the loads in the outlets **3**, located in the rear side of the unit.

-  Do not connect a laser printer or scanner to the UPS. They can damage the unit and/or deplete the energy stored in the batteries, which is reserved for a more critical and sensitive loads.



5.4. CONNECTION OF MODEM/PHONE LINE.

Connect the modem/phone line to the RJ 5 connector at the back of the UPS. Connect the modem/phone cable to the RJ 6 connector of the equipment.

5.5. CONNECTION OF COMMUNICATION CABLE.

- To make possible unattended UPS start up and shutdown and the monitoring of its status, connect one of the ends of the communication cable to connector **4** of the USB port of the SPS.ONE and the other end to the communication port of the PC.

- With the monitoring software installed in the PC, the UPS start up / shutdown can be set, as well as to follow up its status. Follow the next steps before downloading and installing the monitoring software:

5.6. DOWNLOAD AND INSTALLATION OF THE SOFTWARE.

- The monitoring software downloading is free provided that the user is log in and the equipment too in the site:

support.salicru.com

- In the same log in, in the initial page there is a shortcut to «ACTIVATION GUIDE». Follow the stated steps.
- Once the log in is done, the software of the related equipment can be downloaded through the site :

support.salicru.com/software

- For its installation proceed as any other software.
- When the PC is started up, the monitoring software will be show as an orange icon in the system tray, near the clock.

5.7. START UP/SHUTDOWN OF THE EQUIPMENT.

5.7.1. Start up of the SPS.ONE.

- With the SPS.ONE completely shutdown, press the button **9** to start up the equipment.
- When starting up the equipment, an internal autotest is done, so all the leds light. This process takes some seconds, after that, the UPS supplies output voltage coming from mains or the batteries.

Regardless of the start up is done with mains or over the batteries (no mains), the autotest will be done.

- Start up the loads.

5.7.2. Shutdown of the SPS.ONE.

- Shutdown the loads.
- Shutdown the equipment by pressing the button **9**.

6. TROUBLESHOOTING GUIDE.

Use the following table to solve the minor problems that can be found:

| Problem | Possible cause | Solutions |
|---|---|--|
| No LED is ON in the front panel. | Low battery. | Charge the UPS for 6 hours at least. |
| | Battery fault. | Replace the battery by another of the same type. |
| | UPS is not ON. | Press the UPS start up button again. |
| Acoustic alarm beeps permanently with AC mains correct. | UPS is overloaded. | Disconnect some loads first. Before start the unit up again, check that the load is connected according to the power specifications of the unit. |
| Short back up time in case of blackout. | UPS is overloaded. | Disconnect some critical loads. |
| | Battery voltage is too low. | Charge the UPS for 6 hours at least. |
| | Faulty battery, due to a high ambient temperature or wrong operation. | Replace the battery by another of the same type. |
| Mains is correct, but the equipment is in battery mode. | Main power plug is not well connected. | Reconnect the main power plug to mains suitably. |

Table 1. Troubleshooting guide table.

- If you are log in the site:
support.salicru.com
, you will have access to:
support.salicru.com/troubleshooting
, to consult an extended troubleshooting guide of the equipment, a part from other services that there will be available for the mere fact of being only logged.

7. GENERAL TECHNICAL SPECIFICATIONS.

| MODEL | 500 | 700 | 900 | 1100 | 1500 | 2000 |
|--------------------------------------|---|------|-----|------|---------------|------|
| ACQUSTIC ALARM | | | | | | |
| Battery mode | Modulated every 10 sec.. | | | | | |
| Low battery | Modulated every 1 sec.. | | | | | |
| Overload | Modulated every 0,5 sec.. | | | | | |
| Battery replacement | Modulated every 2 sec.. | | | | | |
| Fault | Continuous. | | | | | |
| COMMUNICATION | | | | | | |
| Port | USB 2.0. | | | | | |
| Software | Ready for Windows, Linux, Unix and Mac. | | | | | |
| Download from | support.salicru.com | | | | | |
| GENERALS | | | | | | |
| Maximum altitude | 2400 m. a.s.l.. | | | | | |
| Relative humidity | Up to 90 % non-condensing. | | | | | |
| Temperature | 0.. 40 °C. | | | | | |
| Acoustic noise at 1 m. | < 40 dB. | | | | | |
| STANDARDS | | | | | | |
| Safety | EN-IEC 62040-1, EN-IEC 60950-1. | | | | | |
| Electromagnetic compatibility (EMC) | EN-IEC 62040-2. | | | | | |
| Quality and Environmental management | ISO 9001 and ISO 14001. | | | | | |
| DIMENSIONS AND WEIGHT | | | | | | |
| Depth (mm) | 287 | | 350 | | 397 | |
| Width (mm) | 100 | | 146 | | 146 | |
| Height (mm) | 142 | | 160 | | 205 | |
| Net weight (Kg) | 3,55 | 4,25 | 4,9 | 8,0 | 11,1 | 11,5 |
| INPUT | | | | | | |
| Voltage | 220 / 230 / 240 V AC. | | | | | |
| Range | 162-290 V AC. | | | | | |
| Nominal frequency | 50 / 60 Hz. | | | | | |
| Frequency autosensing | Yes. | | | | | |
| Stabilization | Buck/Boost AVR. | | | | | |
| OUTPUT | | | | | | |
| Voltage (V AC) | 220 / 230 / 240 V AC. | | | | | |
| Voltage accuracy ⁽¹⁾ | ± 10 %. | | | | | |
| Frequency ⁽¹⁾ | 50 / 60 ± 1 Hz. | | | | | |
| Wave shape ⁽¹⁾ | Simulated sinewave | | | | | |
| Available outlets | Schuko (DIN), French (FR), UK, IEC. | | | | | |
| Transfer time | 2-6 ms typical, 10 ms maximum. | | | | | |
| PROTECTION | | | | | | |
| Input | Rearmable thermal or fuse (depending on the model). | | | | | |
| Complete protection | Overload, battery discharge and charger overcurrent. | | | | | |
| Data line | Tel./Fax, modem, ADSL internet. | | | | | |
| BATTERY | | | | | | |
| Type | Pb-Ca sealed maintenance free, 3-5 years design lifetime. | | | | | |
| Charge time | 4-6 hours to recharge the 90% of the capacity. | | | | | |
| Battery replacement warning | Yes. | | | | | |
| User hot swap | Yes. | | | | | |
| Capacity (Ah) | 4,5 | 7 | 9 | 7 | 9 | 9 |
| Number | 1 | | 2 | | 2 | |
| FUNCTIONS | | | | | | |
| ColdStart | Yes. | | | | | |
| Autotest | In each start up. | | | | | |
| Automatic Restart up | Yes, after the end of autonomy and mains is restored. | | | | | |
| VISUAL INDICATIONS | | | | | | |
| AC mode led | Green colour, ON. | | | | | |
| Battery mode led Modo Bateria | Yellow colour, blinking. | | | | | |
| Fault led / End of autonomy | Red colour, ON. | | | | | |
| Battery charge level bar | - | | | | Green colour. | |
| Connected load level bar | - | | | | Green colour. | |

| MODEL | 500 | 700 | 900 | 1100 | 1500 | 2000 |
|--------------------------------------|---|------|-----|------|------|------|
| ACQUSTIC ALARM | | | | | | |
| Battery mode | Modulated every 10 sec.. | | | | | |
| Low battery | Modulated every 1 sec.. | | | | | |
| Overload | Modulated every 0,5 sec.. | | | | | |
| Battery replacement | Modulated every 2 sec.. | | | | | |
| Fault | Continuous. | | | | | |
| COMMUNICATION | | | | | | |
| Port | USB 2.0. | | | | | |
| Software | Ready for Windows, Linux, Unix and Mac. | | | | | |
| Download from | support.salicru.com | | | | | |
| GENERALS | | | | | | |
| Maximum altitude | 2400 m. a.s.l.. | | | | | |
| Relative humidity | Up to 90 % non-condensing. | | | | | |
| Temperature | 0.. 40 °C. | | | | | |
| Acoustic noise at 1 m. | < 40 dB. | | | | | |
| STANDARDS | | | | | | |
| Safety | EN-IEC 62040-1, EN-IEC 60950-1. | | | | | |
| Electromagnetic compatibility (EMC) | EN-IEC 62040-2. | | | | | |
| Quality and Environmental management | ISO 9001 and ISO 14001. | | | | | |
| DIMENSIONS AND WEIGHT | | | | | | |
| Depth (mm) | 287 | | 350 | | 397 | |
| Width (mm) | 100 | | 146 | | 146 | |
| Height (mm) | 142 | | 160 | | 205 | |
| Net weight (Kg) | 3,55 | 4,25 | 4,9 | 8,0 | 11,1 | 11,5 |

⁽¹⁾ Battery mode.

Table 2. General technical specifications.



A series of horizontal dotted lines for writing, starting from the top left and extending across the page.



A series of horizontal dotted lines spanning the width of the page, providing a guide for writing or drawing.

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The Technical Service and Support (T.S.S.) network, Commercial network and warranty information are available in website:

www.salicru.com

Product Range

Uninterruptible Power Supplies (UPS)

Lighting Flow Dimmer-Stabilisers

DC Power Systems

Static Inverters

Photovoltaic Inverters

Voltage stabilisers



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