



# SERVICING INSTRUCTIONS – USER'S MANUAL

## Uninterruptable power supply unit LESTAR of TS series Sine Wave Technology TS-1100 / TS-1500



Prior to switching on the uninterruptable power supply unit please read carefully these instructions and warranty conditions!

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### 1. USE OF THE UNINTERRUPTABLE POWER SUPPLY UNIT

UPS (Uninterruptable power supply unit) is designed for work with the equipment of information systems, such as: computers, networks, servers, modems, as well as other electronic equipment, such as revenue cash registers and telephone exchanges. Use of the uninterruptable power supply unit with electric appliances, such as refrigerators, electric water kettles, mechanical household appliances AGD, and other electric motors is unallowable. LESTAR will not bear any responsibility for damages caused as a result of improper connection of the afore mentioned equipment.

### 2. SAFETY INSTRUCTIONS



- ATTENTION!**
1. UPS is equipment designed for high voltage operation. Inside the unit there are live parts dangerous for human life!
  2. Please don't open yourself the casing, don't make repairs, etc. since this brings about hazard of electric shock. If you have some questions, please come into contact with our company, or the salesman.
  3. The device is not recommended for protection of life saving equipment!
  4. Please don't spill liquids on the UPS casing, or inside it.
  5. The uninterruptable power supply unit should be stored in dry rooms. Avoid location of UPS in the neighborhood of environment of considerable humidity, or in the vicinity of liquids, such as chemical water solutions.
  6. Avoid location of UPS in a place, where it will be exposed to the action of sun rays, or other heat sources, as well as in the places of low temperature. Recommended temperature range is 15°C+25°C.
  7. Please don't plug ventilating holes making possible escape of heat from the interior of UPS.
  8. For connecting UPS please use grounded supply cable; connecting plug of UPS should be plugged-in to a socket having grounding circuit.
  9. Under normal working conditions when supplied from „supply mains“ UPS is protected by a fuse against overloading, or short circuit.
  10. Supply socket, to which UPS has been connected, should be located close to the device and should be easily accessible.
  11. The uninterruptable power supply unit should have its own source of power – internal accumulators. UPS output can be under tension even, if it has been disconnected from supply mains! Full disconnection of UPS from the source of power will take place after removal of the clamp from the accumulator. Such operation may be performed by an authorized serviceman only!
  12. In order to exchange the battery please contact with the service station indicated by LESTAR.
  13. This device is not a lighting protector. Should a house or antenna be directly struck by a lightning, ups might not protect your equipment.
  14. The uninterruptable power supply unit should be connected to a socket, whose phase wire has been protected by a fuse of rated value not greater than 16A. This is in conformity with the regulations IEC 950 (EN 69950-2000) as far as user's safety is concerned. To this aim oblige the installer of the device to check the electric system of the building (room), where the uninterruptable power supply unit will operate.

### 3. EXCHANGE OF FUSE

In the case of connection of a unit, whose power consumption exceeds considerably the rated value, or in the case of a short circuit in the mains socket, the fuse can be blown out. The fuse, as well as the spare fuse, are located in a holder in the rear panel of the device. In order to exchange the fuse, switch off the UPS by means of the power switch and then pull out the supply cable from the socket, pull out the fuse holder and exchange the fuse (delay fuse WTA-T: 10A).

### 4. INSTALLATION, CONNECTION AND INSTALLING REMARKS

1. Unpack UPS in order to check, whether the product has not been damaged. Should any damages be detected, contact with the salesman.
2. Connect the AC supply cable to UPS socket.
3. Depress the power switch; LED will illuminate, which means that UPS is supplied with alternating current.
4. Connect the computer supply cable, or the supply cable of other peripheral equipment (IEC 320) to output sockets of UPS. Then switch on the computer and disconnect UPS supply cable in order to check the unit for proper operation. Supply cable is to be disconnected by removing the plug with a grounding pin from the mains socket.
5. Prior to proceeding to operation of the unit switch on UPS and charge it for 8 hours. This will enable to charge the accumulator. Should operation of the unit begin before a full charging of the accumulator, then the time of emergency operation will be shorter than the full capacity of the accumulator.
6. UPS is switched off by depression and hold back of the power switch, which is accompanied by extinguishing of LED
7. Don't use UPS with laser printers, electric motors and mechanized appliances because of a high starting current.
8. Don't connect the uninterruptable power supply unit to an electric system cooperating with a power generating set.
9. If you don't anticipate the use of UPS for a longer period of time, please charge the accumulator for minimum 12 hours every 3 months.
10. Full discharging of accumulator can lead to a considerable shortening of its service life. After discharging it should be charged again as soon as possible. If the device has been fully discharged for a period of time longer than 3 days, it could be irreversibly damaged!

11. Accumulator will re-gain its full operating capacity after about 1 month of mains operation.
12. Permissible value of current leakage to the earth must not exceed 2.5mA

### 5. DESCRIPTION OF OPERATION

Emergency uninterruptable power supply units of OfficePower AVR series are up-to-date source of power for various electronic equipment, mainly for computer systems to be used for professional purposes and in households. The application of a uninterruptable power supply unit eliminates 230V line interference. (over-voltages, current pulses, voltage decays) and ensures stable and dependable operation of computer systems. During normal mode of operation when supplied from supply mains green diode is illuminated. The uninterruptable power supply unit will filter the existing voltage thus eliminating line interference and in the case of a drop, or growth of voltage the AVR system (automatic voltage regulation) is being stabilized on the 230 V level. In the case of mains voltage decay, the uninterruptable power supply unit during a „fraction of second“ (6 ms) is being switched over to the work from an accumulator. This is being signaled by a slow flickering of the green diode and a sound signal synchronized with it (every approx. 3 sec). Quick flickering of diode and the same sound signal (every approx. 1 sec.) means that the accumulator has been almost fully discharged and that after a moment the uninterruptable power supply unit can be disconnected. This is being signaled by extinguishing of the yellow diode. Emergency supply time is dependent upon the degree of charging of the accumulator and the load connected to the uninterruptable power supply unit and amounts 6 to 16 min. The uninterruptable power supply unit is provided with a function, owing to which it may be switched on without an external supply (so called cold start). This has been described in the chapter devoted to the properties and functions of the uninterruptable power supply unit.

### 6. FEEDING STRIPS

Frequently expressed opinions, that the uninterruptable power supply units perform also the function of anti-interference strips, is erroneous. Extended LESTAR strips (of POWER MULTIPROTECTOR, POWER MASTER HIGH series) have incomparably greater possibilities of attenuation and adsorption of energy than UPS units available on the market. As a result, their application ensures far greater efficiency and better protection of your valuable equipment. In order to better understand the level of protection, compare the data given below with the data of the uninterruptable power supply units:

	Absorption of pulse energy	Max. current	Attenuation
<b>PowerSuperprotector</b>	909 Joules	30 000 A	70 dB
<b>PowerMultiprotector</b>	1818 Joules	30 000 A	70 db
<b>PowerMasterHigh 5/4</b>	613 Joules	22 000 A	60 dB

Most uninterruptable power supply units have filtering systems and varistor attenuators of very low values of the adsorbed energy. Some of them don't have them at all and so the existing level of protection is questionable. Hence, in the case of a strong impact and damaged varistor attenuator also the application of an anti-interference strip before the UPS being connected also brings about a considerable financial advantage, because the possible cost of service and repair of the strip is considerably lower than of each UPS separately. We do recommend the use of LESTAR supply strips and comparison of the data and technical parameters.



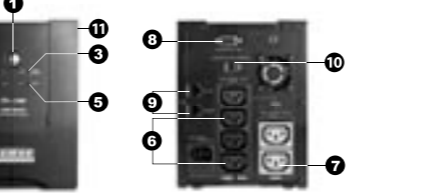
### 7. PROPERTIES AND FUNCTIONS

- ✓ **TRUE SINE WAVE ON OUTPUT**  
In back-up operation status UPS output voltage is perfectly sinusoidal. The course pattern is not changed under the influence of UPS load increase or decrease.
- ✓ **FULL AVR FUNCTION**  
Operation with AVR function consists in regulation of output voltage on a level of 230V (±10%). In spite of fluctuations of the input voltage within the limits from 170V up to 280 V, the output voltage is constant. Voltage regulation is effected without drawing energy from an accumulator.
- ✓ **LINEAR INTERACTIVE SUPPLY OF UPS OUTPUT**  
AVR function is combined with switching over to operation with supply from accumulator, when the threshold of operation of AVR system has been exceeded. Within the range of voltage from 170 V up to 280 V regulation of output voltage takes place by means of AVR function. Should voltage drop below 170V, or raise above 280V, then the uninterruptable power supply unit will be switched over to operation with supply from an accumulator.
- ✓ **COLD START**  
The uninterruptable power supply unit can be started when not supplied from the supply mains. This function is possible only for a standard set consisting from a computer and 15" monitor and is activated by switching on the power switch. The uninterruptable power supply unit will then operate in the emergency mode of operation and will take energy from the accumulator.
- ✓ **TELEPHONE FILTER RJ45**  
UPS offers the possibility of connection of a modem, or telephone. Telephone line is protected against over-voltage and interference, which can occur in the telephone network.
- ✓ **PROTECTION OF ACCUMULATOR FULL DISCHARGING**  
Microprocessor automatic system for testing and control of operation of the emergency uninterruptable power supply unit protects the uninterruptable power supply unit against full discharging. Should condition close to full discharging be detected, then the uninterruptable power supply unit will be completely disconnected.
- ✓ **SOUND SIGNAL OF OVERLOADING, OR FULL DISCHARGING OF ACCUMULATOR**  
Full discharging of accumulator and switching off of the uninterruptable power supply unit in a short time is signaled by a quick flickering of the green diode and a single sound signal lasting 1 second.
- ✓ **AUTOMATIC SWITCHING OFF IN THE CASE OF A SHORT CIRCUIT OR OVERLOADING**  
The uninterruptable power supply unit is being automatically switched off in the case of overloading, or short circuit. This is being signaled by a long acoustic signal.
- ✓ **OUTPUT SOCKETS**  
In order to be connected to a computer the uninterruptable power supply unit has been provided with 6 output sockets (4 battery backup outlets and 2 surge protection sockets). Active power expressed in Watts connected to the both sockets may not exceed 700W (TS-1000) and 1000W (TS-1500).
- ✓ **SOFTWARE FOR COMMUNICATION PORT**  
The uninterruptable power supply unit is provided with a communication port RS232 with USB adapter. After having been connected to the computer, it together with the software renders possible control of operation of emergency uninterruptable power supply unit.
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### 8. DESIGN OF THE UNINTERRUPTABLE POWER SUPPLY UNIT ALARMS AND SIGNALING

LP	POWER ON	PRACA Z BATERII	BOOST	BUCK	BEZ-PIEC-ZNIK	ALARM	STAN PRACY ZASILACZA
1.	On	Off	Off	Off	Normal	Off	Normal
2.	On	Off	On	Off	Normal	Off	Max. boost 14% of input voltage for output regulation while input voltage is from 6% to 17% under nominal.
3.	On	Off	On	Off	Normal	Off	Max. boost 30% of input voltage for output regulation while input voltage is from 18% to 26% over nominal.
4.	On	Off	Off	On	Normal	Off	Max. buck 12% of input voltage for output regulation while input voltage is from 7% to 22% over nominal.
5.	Off	On	Off	Off	Normal	Two Beeps	Utility failure – The UPS is providing battery power to the Battery-Power Supplied outlets.
6.	Off	On	Off	Off	Normal	Rapid beeps	Utility failure – The UPS is providing battery power. The rapid beeps indicate the battery will run out of charge within a few minutes.
7.	Off	On/Off	On/Off	On/Off	Blown	Two beeps or rapid beeps	Overload – Occurs in the full-time surge protection outlets. Turn the UPS off and unplug at least one piece of equipment from the UPS. Check the fuse and do the replacement if necessary. Turn the UPS on.
8.	Off	On/Off	On/Off	On/Off	Normal/Blown	Long Beep	Overload – Occurs in the battery-power supplied outlets. Turn the UPS off and unplug at least one piece of equipment from the UPS. Check the fuse and do the replacement if necessary. Turn the UPS on.

### EXTERNAL ELEMENTS: TS-1000, TS-1500



1. Power Switch – Press the power button to turn the UPS ON or OFF.
2. Power On Indicator – This LED is illuminated when the utility condition is normal and the UPS outlets are providing "clean power", free of surges and spikes.
3. Using Battery Indicator – This illuminates during utility failure, indicating that the battery is supplying power to the battery-power supplied outlets.
4. Boost indicator – This LED indicates that the UPS is operating in automatic voltage regulation mode. When the led is illuminated continuously, it indicates that input over-voltage and that the UPS unit boosts input voltage.
5. Buck indicator – This LED indicates that the UPS is operating in automatic voltage regulation mode. When the led is illuminated continuously, it indicates that input over-voltage and that the UPS unit bucks the voltage.
6. Battery Backup and surge protector outlets – The UPS provides battery powered and surge protected outlets for connected equipment to insure temporary uninterrupted operating during a power failure and against surges and spikes.
7. Surge protection outlets – The UPS provides surge protected only outlet for connected equipments against surges and spikes.
8. USB and Serial port to PC – This port allows connection and communication form the DB-9 serial or USB port on the computer to the UPS unit. The UPS communicates its status to the LestarPowerX3 software. This is also compatible with the UPS service provided by Windows 98, Windows ME, Windows NT, Windows 2000, Windows XP, Windows Server 2003 and Mac OS 10X.
9. Ethernet (RJ45) Network Protection Ports – These ports are the protection for your computer network cable.
10. USB port (option).
11. Name plate.

### COMMUNICATION WITH COMPUTER AND SOFTWARE INSTALLATION

(Lestar can provide surge suppression and battery backup without the software. However, if you need to schedule for UPS Auto-shutdown, then it is necessary to install the software LestarPowerX3).

#### COMMUNICATION

1. Turn off your UPS
2. Connect the serial interface cable to your UPS and the open serial port on the rear panel of the computer. If you would like to use USB interface, please connect the USB adapter with the Serial Cable then connect the USB to your computer. (See the figure)
3. Plug the UPS into an AC outlet, turn the UPS on and start your computer.
4. Follow the instructions on the User's Manual to complete the installation.

#### FOR WINDOWS 95/98/ME

1. Turn the UPS off and unplug it.
2. Connect the serial interface cable to serial port on the UPS and an open serial port on the back of the computer (Note: You must use the serial cable that was supplied with the unit).
3. Plug the UPS into an AC outlet, turn the UPS on, and then start your computer.
4. Windows will find new hardware.
5. Insert the LestarPowerX3 installation disk into drive, then follow the on-screen instructions.
6. When the installation is completed, remove the installation disk

#### FOR WINDOWS NT

1. Click on start, point to settings, and then click Control Panel
2. Double-click on the UPS into an AC outlet, turn the UPS on, and then start your computer.
3. Remove the check mark from the box label UPS is installed on, and click OK.
4. Acknowledge the message that the UPS is in an unknown state.
5. Exit to the desktop, then shutdown your computer.
6. Turn the UPS into AC outlet, turn the UPS on and then start your computer
7. Connect UPS with computer. (Note: You must use the serial cable that was supplied with the unit).
8. Plug the UPS into an AC outlet, turn the UPS on and then start your computer.
9. Click start, point to settings, and click control panel.
10. Double click on Add/Remove Programs.
11. Insert the LestarPowerX3 installation disk into drive, and click install.
12. follow the on-screen instructions
13. When the installation is completed, remove the installation disk

#### FOR WINDOWS 2000

1. Click on start, point to settings, and click Control Panel.
2. Double click on power options.
3. On the UPS Tab, click select
4. In the UPS Selection Dialog Box, under Manufactures, click None.

5. Exit to the desktop and shutdown the computer.
  6. Turn the UPS off and unplug it.
  7. Connect UPS with computer.
  8. Plug the UPS into AC outlet, turn the UPS on and then start your computer.
  9. Windows will find new hardware.
  10. Insert the software installation disk into the drive and follow the on-screen instructions.
  11. When the installation is completed, remove the installation disk.
- FOR WINDOWS XP (HOME AND PROFESSIONAL)**
1. Click on start and then click on the UPS tab.
  2. Double-click on Power Options then click on the UPS tab.
  3. Set the manufacturer to None.
  4. In the UPS off and unplug it.
  5. Exit to the desktop and shutdown your computer.
  6. Turn the UPS off and unplug it.
  7. Connect UPS with computer.
  8. Plug the UPS into AC outlet, turn the UPS on and then start your computer.
  9. Windows will find new hardware.
  10. Insert the software installation disk into the drive and follow the on-screen instructions.
  11. When the installation is completed, remove the installation disk.

When the installation is completed, LestarPowerX3 software will appear on your screen for a few seconds, and the minimize. It will appear as a blue and white battery icon located in the system tray, near the clock.

### 9. TECHNICAL DATA\*

Model	TS-1000	TS-1500	
Power	1100VA / 700W	1500VA / 1000W	
Input	Rated input voltage	~230V	
	Rated input current	8A	
	Switching over threshold supply mains-UPS	~170V + ~280V	
Output	Output voltage range (AVR)	230V +/- 10%	
	Output frequency of accumulator	50 Hz +/- 1%	
	Course form	Approximate sinusoid 230Vac ±5%	
Switching over time	< 6 ms		
Accumulators	Type	Sealed lead-acid accumulator, service-less	
	Back-up time Pmax / P 0.5max	6 - 14 min 6 - 12 min	
	Charging time	8 hours to 90% full capacity	
	Kind of accumulator	12V/9Ah x 2 12V/10Ah x 2	
Protections	Protection of accumulator	Auto-test and full accumulator charging protection	
	Auto-test	Auto-test - after every switching on	
Indicators	Signaling diode	Power On, Using Battery, Boost, Buck	
	Acoustic signal	On Battery, Low Battery, Overload	
Electric protection	Protection against current surge	440 Jouli	
	Protection against overload	106%, when load is 94%-106%, buzzer sounds. When load is over 106% continuously, UPS will be turned off automatically within 90 seconds.	
Protection Modem/Supply mains	Interface	RJ 45	
	Software	LestarPowerX3	
Communication with computer	Interface	RS232 and/or USB	
	Software	Windows 98/ME/2000/NT/XP/ Mac OS 10.X	
Others	Dimensions (mm) length x width x height	30,9cm x 14,1 cm x 18,4cm	
	Weight	14,6kg 15,5kg	
	Working conditions	Temp.0-35°C up to 95% humidity	
	Sockets	Storage does not cause condensation	15-45°C
		4 output sockets IEC 320 damaged reinforcement	
	Noise level	2 output sockets IEC 320 with surge protection	
	Up to 30 dB from a distance of 1 meter		

\* Right of modifications without separate notification reserved by the manufacturer.

### 10. MALFUNCTIONS AND REMEDIES

Problem	Supposed reason	Solution
The UPS does not perform expected runtime.	Batteries are not fully charged Battery is slightly worn out.	Recharge the battery by leaving th UPS plugged in. Contact Lestar company
The UPS will not turn on.	The on/off switch is designed to prevent damage by rapidly turning it off and on. The unit in not connected to an AC outlet. The battery is worn out. The unit is mechanically broken	Turn the UPS off. Wait 10 sec. and then turn the UPS on. The unit must be connected to a 220-240V 50/60Hz outlet Contact Lestar company Contact Lestar company
Outlets do provide power to equipment	Fuse is blown due to overload Batteries are discharged Unit has been damaged by a surge or spike	Turn the UPS off and unplug at least one piece connected equipment. Unplug the power cord of the UPS then remove the fuse compartment beneath the power inlet of the UPS and replace the blown fuse with a spare one. Lock the compartment back to the UPS. Connect power cord then turn the UPS on. Make sure that your spare fuse meets the specification: 10A 250V 5 x 10mm Allow the unit to recharge for at least 4 hours Contact Lestar company
LestarPowerX3 software in inactive	The serial/USB cable is not connected The serial/USB cable connected to the wrong port The unit is not providing battery power The serial cable is not the cable that was provided with the unit	Connect the serial/USB cable to the UPS unit and open serial port on the back of the computer. You must use the cable that came with the unit Try another serial/USB port of your computer Shutdown your computer aon turn the UPS off. Wait 10 sec. and turn the UPS back on. This should reset the unit You must use the cable included with the unit for the software

### 11. PACKAGE CONTENT:

1. LESTAR uninterruptable power supply unit x 1
2. Cable IEC 320 - for the unit being supplied x 2
3. Spare fuse in supply socket WTA-T BA x 1
4. Servicing instructions + warranty card x 1
5. Cable RS-232 + software LestarPowerX3 x 1
6. Phone cable RJ-11 or RJ-45 x 1
7. Cable USB x 1