

USER'S GUIDE

LEONICS®

Ultimate-X series

**HIGH PERFORMANCE TRUE ON-LINE
DOUBLE CONVERSION UPS**

Authorized Distributor



• www.leonics.com • e-mail : global_business@leonics.com • LEN.MAN.UPS.076 Rev.2.00/2003



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SAFETY INSTRUCTIONS

Please read and follow this user's manual carefully and completely.

Important: Please keep this user's manual for later reference. It consists of Introduction, Front and Rear Panel, Installation and Operation, Troubleshooting, Customer Support and Maintenance

If the UPS does not operate properly and you cannot solve the problem using the troubleshooting information in this user's manual, please contact your LEONICS local distributors, LEONICS Service Center, send e-mail to support@leonics.com or visit www.leonics.com.

To help you much more quickly when contact us, please record the following information:

LEONICS UPS model : _____

Serial number of your UPS : _____

Purchased date : _____

Purchased from : _____

1.1 General safety instruction

- 1.1.1 DO NOT work alone under hazardous condition
- 1.1.2 Short circuit current in conductor may cause severe skin burn.
- 1.1.3 Must contact certified person when user wants to connect any equipment to utility power line.
- 1.1.4 Check whether the cables, receptacles, power source are always at good conditions.
- 1.1.5 To reduce short circuit risk, if you are not sure whether you have ground system, disconnect UPS from utility power every time before you connect any loads to UPS. After connect all loads to UPS already, then reconnect the UPS to utility power.
- 1.1.6 DO NOT touch any metal parts of the equipments when connected to UPS
- 1.1.7 When connect or disconnect communication cables between equipments, should use only one hand. This is to avoid electric shock from contact 2 surfaces which ground has different potential voltage.
- 1.1.8 Recommend to connect UPS to 3-wire power source (2 poles + ground) which connects to branch circuit or fuse or automatic cut out

1.2 Caution! Safety instruction for install and operate UPS

- 1.2.1 Should install UPS in dry area with good ventilation, low humidity, no chemical particles, no flammable substances. Avoid installing UPS near radio transmission station, heat dissipation equipment, or direct to sunlight.
- 1.2.2 UPS has ventilation grills on the back and sides. To help UPS has good ventilation, DO NOT block ventilation grill.
- 1.2.3 Should connect UPS to utility line and turn on all the time.
- 1.2.4 When user wants to connect computer interface to UPS, turn off power switch and disconnect cables from utility line.
- 1.2.5 Turn on UPS before turn on loads to prevent surge from your loads.
- 1.2.6 DO NOT connect utility power to UPS OUTPUT. This may cause damage to your UPS.
- 1.2.7 When heavy rain, please avoid using electronic instruments including UPS to prevent it from lightning.

- 1.2.8 Use soft cloth to clean UPS when it is OFF. DO NOT clean it with solvents.
- 1.2.9 DO NOT use UPS with life recovery instruments. The failure of UPS may cause life recovery instruments failure or effect to their performance or effect to safety system of those instruments.

1.3 Warning! Safety instruction for battery

- 1.3.1 There are batteries inside the UPS. Although user has disconnected it from utility power line, the UPS OUTLET or OUTPUT terminal are still has electricity. Be careful of electric shock.
- 1.3.2 The internal parts of UPS may conduct electric current which is dangerous to user. UPS has no user serviceable parts. DO NOT remove or disassemble any parts of the UPS. If the user wants to repair the UPS, contact us or our nearest service center.
- 1.3.3 In case that user does not use or keep UPS for a long time, to preserve the battery life, please follow the below instruction
 - 1.3.3.1 Turn off power switch and unplug input cable from power source
 - 1.3.3.2 In case that user does not use UPS for a long time. User should re charge battery every 3 months by plugging the input cable to power source and turn the UPS on for at least 8 hours.

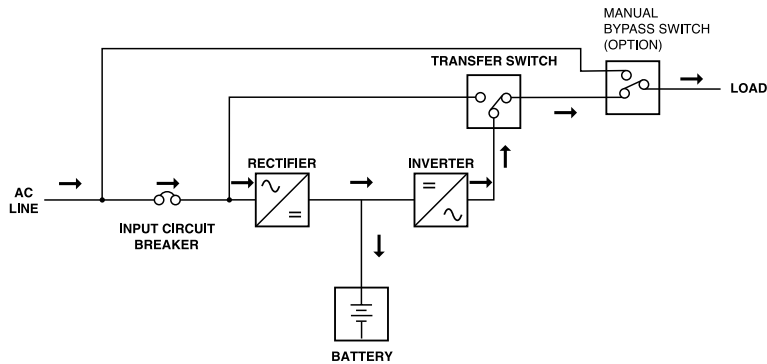
INTRODUCTION

2.1 General

Leonics Ultimate-X series UPS is a True On-Line Double Conversion uninterruptible power supply which is the highest efficiency UPS system available in the present market. It is able to protect all kinds of power problems and suitable for any power sensitive electrical appliance and electronic equipments such as computers, communication equipments, medical instruments, electronic scales, measuring instruments, scientific equipments, and etc.

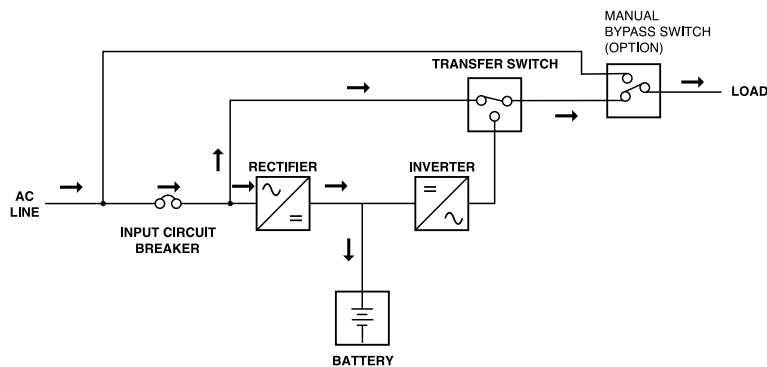
2.2 How Leonics Ultimate-X series UPS works

2.2.1 When utility power and loads are normal



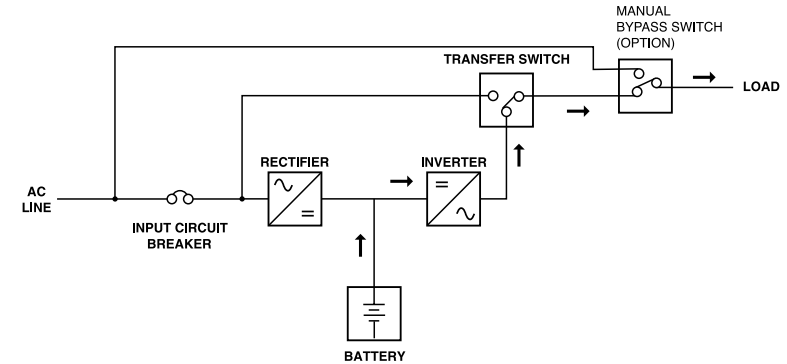
Above diagram shows how UPS works when utility power (AC line) is normal and UPS has less than 100% load. UPS converts utility power from alternative current (AC) to direct current (DC) at RECTIFIER. Some of the DC power flow to charge battery to be backup power and the rest flow directly to INVERTER to invert power to high quality and stable AC power. Then, supply to load.

2.2.2 When utility power is normal but overload



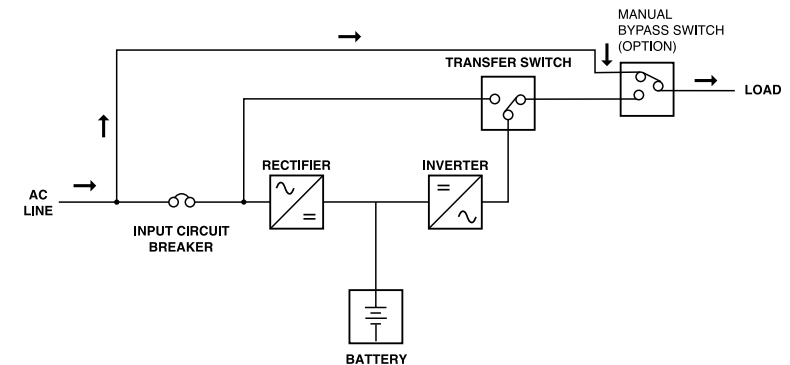
Above diagram shows how UPS works when utility power is normal and UPS has more than 100% load. UPS converts utility power at RECTIFIER to charge battery only. The power supplied to load is from utility line.

2.2.3 When utility power fail but loads are normal



Above diagram shows how UPS works when utility power fail and UPS has less than 100% load. UPS draws backup power from battery to invert to AC power and continuously supplies to load.

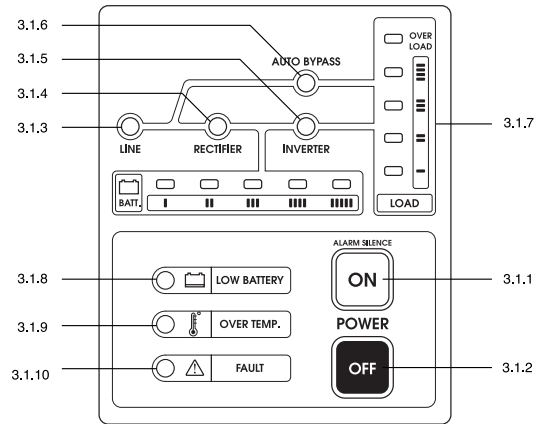
2.2.4 Use maintenance bypass switch when UPS is malfunction (option)



Above diagram shows how system works when UPS is malfunction. User is allow to temporary run the system by turning the manual bypass switch from Auto to Bypass position. All loads will get power supplied directly from utility line. Then, contact us or our nearest service center.

FRONT AND REAR PANEL

3.1 Front panel



3.1.1 **POWER ON / ALARM SILENCE** Press this button to turn the UPS on and mute alarm sound.

3.1.2 **POWER OFF** Press this button to turn the UPS off.

3.1.3 **LINE** The indicator is displayed utility power status

- ON shows that input voltage is normal.
- FAST BLINK shows that input voltage is high.
- SLOW BLINK shows that input voltage is low.
- OFF shows that input voltage is very low.

3.1.4 **RECTIFIER** The indicator is displayed rectifier status.

- ON shows that rectifier operation is normal.
- OFF shows that rectifier does not operate.

3.1.5 **INVERTER** The indicator is displayed inverter status.

- ON shows that inverter operation is normal.
- OFF shows that inverter does not operate

3.1.6 **AUTO BYPASS** The indicator is displayed when load is consuming power from utility line. It is possible that you connected more than 100% load to the UPS or INVERTER is malfunction.

ON shows that load is consuming power from utility line. It is possible that you connected more than 100% load to UPS or INVERTER is malfunction.

SLOW BLINK shows that utility line voltage is abnormal. Load is not consuming power from utility line.

3.1.7 **LOAD LEVEL** The indicator displayed how much power UPS is supplying compare with its full capacity.

3.1.8 **BATTERY LEVEL** The indicator displayed how much backup power stored in battery compared with full capacity of battery.

ON shows that power stored in batteries

BLINK shows the black out, load is consuming power from batteries.

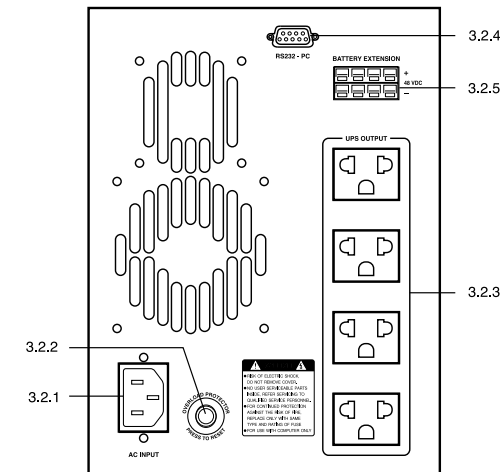
3.1.9 **LOW BATTERY** The indicator displayed when batteries are supplying power.

ON shows that power stored in batteries almost gone and UPS is ready to shutdown itself.

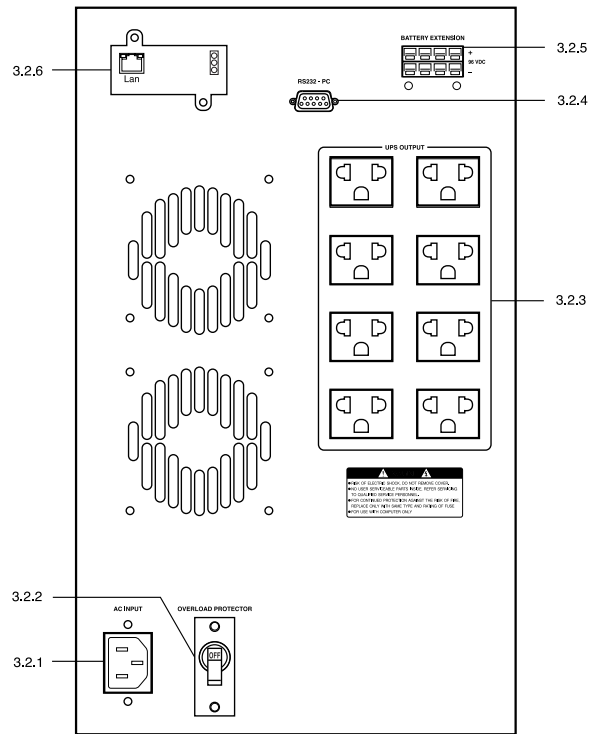
3.1.10 **OVERTEMPERATURE** The indicator displayed when temperature inside the UPS is too high.

3.1.11 **FAULT** The indicator displayed when UPS is malfunction.

3.2 Rear Panel



Ultimate-X 1000VA-1500VA model



Ultimate-X 2000VA-3000VA model

- 3.2.1 **AC INPUT** Connect power cord to this socket.
- 3.2.2 **INPUT CIRCUIT BREAKER** Protect UPS from overload or short circuit current
- 3.2.3 **OUTPUT** Connect power to load at this outlet.
- 3.2.4 **SMART RS-232 COMMUNICATION PORT** Port to connect RS-232 cable to computer.
- 3.2.5 **BATTERY EXTENSION PORT** Port to connect battery extension modules for increase the duration of backup time.
- 3.2.6 **SNMP AGENT (option)** A port for connecting LAN line to computer interface network in order to monitoring the UPS status through SNMP/HTTP.(see more details in the Net Agent II manual)

INSTALLATION

- 4.1 Connect computer network cable (if any) to RS-232 port of UPS.
- 4.2 Plug in load cables to UPS OUTPUT.
- 4.3 Plug in INPUT CABLE to wall outlet (utility line).
- 4.4 In case of battery extension, plug the cable from battery extension module into the UPS battery extension outlet.

Warning : Be sure that the UPS has already plug in power line for 10 second before connecting battery extension. Otherwise, it may cause electrical spark.

OPERATION

5.1 Switch on

- 5.1.1 **Under normal utility power line (AC Start) :**
Plug in the power cord to the wall outlet. Press the POWER ON button for 0.5 seconds then release. The display panel will show the UPS status, after that UPS will start up.(See details in section 3.1)
- 5.1.2 **Under power failure conditions (DC start) :**
Press the POWER ON button for 0.5 seconds then release.The display panel will show the UPS status, after that UPS will start up with the power supply from batteries.

5.2 Switch off

- 5.2.1 **Under normal utility power line (AC Start) :**
Press the POWER OFF button for 0.5 seconds. All indicator lights will be off, except the LINE indicator. That means there is input voltage supplied to UPS for charging batteries.

5.2.2 Under power failure conditions (DC start) :

Press the POWER OFF button for 0.5 seconds then release. All indicator lights will be off.

TROUBLESHOOTING

Problem	Cause	Solution
Utility power is normal but UPS supplies backup power.	Power cord does not plug in properly	Check power cord whether it is properly plug in at both wall outlet and input socket.
When power fail, UPS backs up but when power return to normal, UPS still supplies backup power.	Utility voltage is too low	Turn off loads and wait until utility voltage is normal. Then, turn on UPS and loads.
UPS is normal but over-load indicator is on	Loads connected to UPS is more than 100% UPS capacity	Unplug some of the loads until % load is about 75% (the rest 25% is saving for some loads which may draw high current when operate)
LINE indicator is off. AUTO BYPASS and BATTERY LEVEL are blink and alarm sound alarms twice.	Utility voltage is too low or black out	Press ALARM SILENCE button to mute alarm sound and then turn off loads before UPS shuts down.
LINE indicator is slow blink. AUTO BYPASS is blink and alarm sound alarms twice.	Utility voltage is too low.	Press ALARM SILENCE button to mute alarm sound and then turn off loads before UPS shuts down. When power return to normal, turn it on again.

Problem	Cause	Solution
LINE indicator blinks fast. AUTO BYPASS is blink and alarm sound alarms twice.	Utility voltage is too high.	Pre ALARM SILENCE to mute alarm sound and then turn off loads. When power returns to normal, turn it on again.
LOW BATTERY indicator blinks fast and alarm sound alarm continuously.	Battery are almost run out of power.	Turn off loads and UPS. When power returns to normal, turn it on again.
FAULT indicator is on and alarm sound alarms continuously.	There is something abnormal inside the UPS.	Turn off UPS and then turn it on again. If the problem is still there, contact us or our nearest service center.

CUSTOMER SUPPORT

If the UPS does not operate properly and you cannot solve the problem using the troubleshooting information in this users manual, please contact your LEONICS local distributors, LEONICS Service Center, send e-mail to support@leonics.com or visit www.leonics.com.

MAINTENANCE

- 8.1 Leonics UPS does not need any special maintenance. Just only use it according to this user's manual and place it away from dusty and humid area. Anyway, if any of following items are is occurred, please contact us or our nearest service center
 - 8.1.1 Cable is cut or damaged
 - 8.1.2 Wet with any liquids
 - 8.1.3 UPS metal cabinet is broken
 - 8.1.4 UPS is dropped, fallen, crashed or hit

- 8.1.5 User notices abnormal problems under normal operation.
- 8.2 Under normal operation and continuous use, expected life time of ventilation fan is about 20,000 hours.
- 8.3 Even though the backup batteries are maintenance free type, user still need to check them every year to make sure that they are still at good condition by following the procedure below,
 - 8.3.1 Turn on UPS
 - 8.3.2 Turn on loads which are connected to UPS OUTPUT
 - 8.3.3 Disconnect all loads from utility power and check whether the loads are still working normally.
 - 8.3.4 If the loads are not working normally, that means backup batteries are spoiled.
To get the new batteries, contact us or our nearest service center.
- 8.4 For your safety, please turn off the UPS and disconnect the UPS from utility power before maintenance.