

# SINUS SERIES

SINGLE PHASE IN – SINGLE PHASE OUT

UNINTERRUPTIBLE POWER SUPPLY UPS

USER MANUAL

700VA-3000VA



***inform***

UPS SYSTEMS

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# 1. Standard Grading of EMC

The SINUS series of UPS are compliant, manufactured and based on the following international EMC standards.

EN50081-1/ EN55022 CLASS B

EN50082-1/ IEC 801-2 LEVEL 4

IEC 801-3 LEVEL 3

IEC 801-4 LEVEL 4

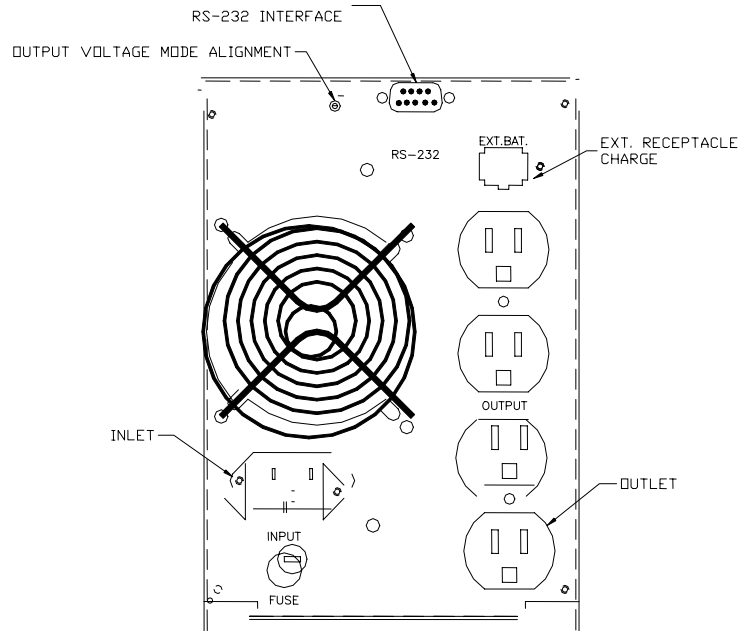
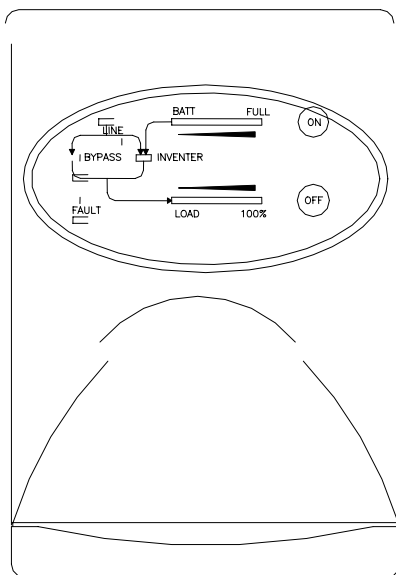
IEC 801-5 LEVEL 2

FCC PART 15 CLASS A

IEEE 587

## 2. System introduction

SINUS series UPS is truly an advanced On-Line uninterruptible power system, producing reliable and pure sine wave power to users' equipment. This could include sensitively medical instruments, computers, telecommunication systems, and industrially automatic equipment. Under power normal condition, the On-Line design enables the system to adjust and filter power fluctuations continuously and automatically. In the event of power failure, it can provide immediate back-up power from the batteries without any interruption. When overload or UPS malfunction, the system will automatically transfer into bypass mode and keep supplying output equipment with utility power; if overload situation releases, it will automatically transfer back to inverter mode when malfunction is resolved by restarting the UPS. Complete transference will be achieved within 4 min. with no interruption.



### 3. Safety instruction

- This manual contains important safety instructions that should strictly be followed during installation and maintenance of the UPS.

**Caution:** To ensure the safety and performance of the UPS, never load UPS with hair dryer, heater, laser printer or any types of inductive load.

- The UPS contains voltages that are potentially hazardous. Please contact dealers or qualified personnel for further service.
- The UPS has its own internal energy source (battery). The output receptacles may even contain electricity when UPS is disconnected to the utility power.

DC voltages provided from the internal batteries are as following:

MODEL NO.	BATTERY VOLTAGE
SINUS-1000	36VDC
SINUS-1500	48 VDC
SINUS-2000	72 VDC
SINUS-3000	96 VDC

- Isolated Ground Wire refers to the bare wire connecting electrical equipment to the ground. The isolated ground wire adopted (green or green with yellow string) must be in accordance to the US wire requirement.

- The power plug to connect with the UPS has to be equipped with ground lug.
  - Batteries must be replaced or served by qualified and knowledgeable personnel.
  - Replacement and use of batteries must be subject to quantity and types of original specifications.
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- Avoid explosion, keep away fire or heating resources from battery or battery pack.
  - Do not disassemble or damage the batteries. The electrobath effluents is toxic and specially harmful to eyes and skin.
  - The batteries contain high voltages and current that are dangerous. To maintain a secure operation and performance of UPS, user must operate basic and regular maintenance. Please follow the precautions below:
    - Do not uncover UPS case if unnecessary.
    - UPS can be connected only to plug of 2 pole / 3 wires.
    - Do not place UPS in environment of excessive humidity.
    - Do not allow liquids or foreign objects to get inside UPS.
    - Keep well the air circulation inside/outside UPS in the front, back, and the sides.
    - Do not load UPS with appliances such as hair dryer, heater...etc.
    - Keep away UPS from direct sunlight and heat-emitting resources.
    - Place the UPS near utility power receptacles.
    - UPS battery maintenance
 

During normal operation, recharge the UPS batteries every 3 months and not less than 12 hours each time. Under high ambient temperature environment, recharge the UPS batteries every 2 months and not less than 12 hours each time.

High voltage risk:

Attention : High voltage exists between battery terminal and grounding system if battery circuit is not disconnected to the UPS input circuit. Please check on the voltage above before connection.

Attention : Cut off battery wires before proceeding the maintenance. Potential risk of high voltage may present between UPS internal components and batteries even after input power is disconnected.

### Electronic features:

Standard Load	Model No	F (HZ)	Input		Output	
			Voltage	Current	voltage	current
1000VA/700W	SINUS-1000(220)	50/60	160-276Vac	6A max	220/230/240V	4.55/4.35/4.17A
1500VA/1050W	SINUS-1500(220)	50/60	160-276Vac	9.5A max	220/230/240V	9.1/8.7/6.3A
2000VA/1400W	SINUS-2000(220)	50/60	160-276Vac	12.5A max	220/230/240V	9.1/8.7/6.3A
3000VA/2100W	SINUS-3000(220)	50/60	160-276Vac	18.75A max	220/230/240V	13.6/13/12.5A

## 4. Installation & Operation

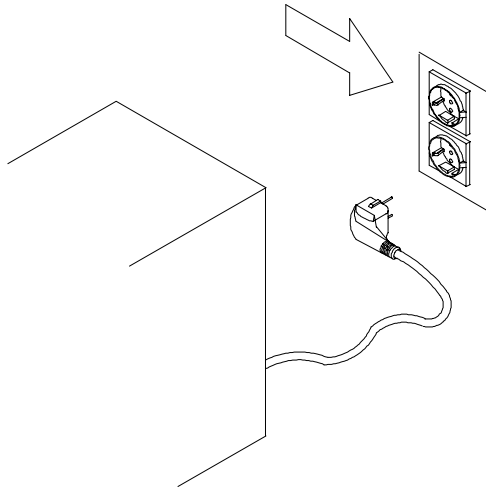
### 4.1. Installation

#### 4.1.1 Unpacking and Inspection

Examine the packing carton to avoid damage. Take immediately notice of the carrier as soon as damage happens. Retain the package for future use.

#### 4.1.2 UPS Installation

Connect the power cord to a verified grounded 3-wire receptacle.



Charge the batteries for 8 hours before use. The UPS will automatically recharge the batteries whenever its power cord is plugged into a wall outlet. You may use the UPS immediately instead of recharging. But the backup time could be less than the rating. Connect the power cord of your computer equipment to the output receptacles of

the UPS.

Turn on the computer equipment.

## **4.2 Operation**

4.2.1 Turn on the UPS with AC power: Plug the power cord into the wall socket for charge. Press the “ON” button for 0.5 second into inverter mode.

4.2.2 Turn on the UPS with battery reserve: Press the “ON” button for 3 seconds into back-up mode.

4.2.3 Turn off the UPS when AC power is normal: Press the “OFF” button

on the front panel and then unplug the power cord to turn off the UPS.

4.2.4 Turn off the UPS under battery mode: Press the “OFF” button on the front panel.

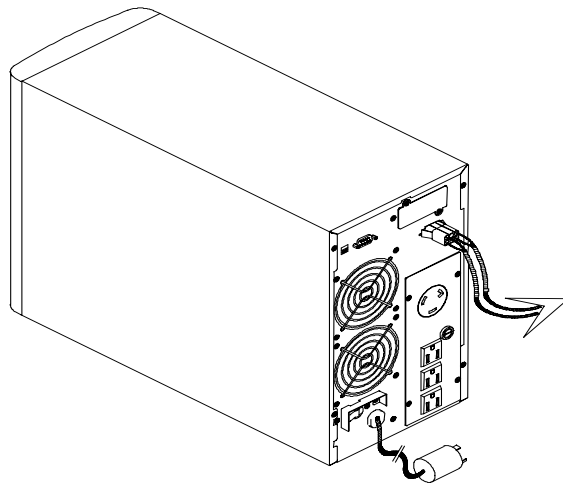
### **4.3. Long back up model operation**

4.3.1 Connect UPS to utility power without load.

4.3.2 Make sure that the UPS battery switch is at “OFF” condition, and then get connection the internal wires of the battery sets.

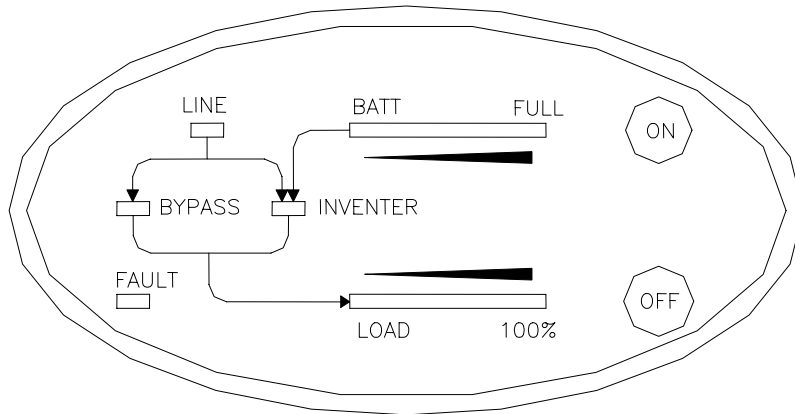
4.3.3 Connect the wires between battery sets and UPS.

4.3.4 Switch the UPS battery to “ON” position and later the external battery installation will be fully completed.



The installation procedures should be followed according to principle of AC power on the UPS before installing the batteries.

## 5. Front panel indication



### Introduction for LED panel indication

#### 1. Battery LED

Battery LED is then lit from right to left when battery approaches respectively under 25%, 25%, 50%, 75% and 90%.

Battery LED displays to ask for batteries replacement.

#### 2. Load LED

Load LED lights up from right to left when load approaches respectively 10%, 25%, 50%, 75% and 95%.

### 3. LINE LED

LINE LED lights when line normal and input relay actuated.

LINE LED flickers : 1. It warns line H. or G. Wire is abnormal.

2. It indicates input voltage between the range of 10 ~72%

### 4. INV. LED

INV. LED comes on when inverter activates.

### 5. BYPASS LED

BYPASS LED illuminates under bypass mode.

### 6. FAULT LED

FAULT LED is on when the system works abnormally. The fault conditions are listed as following.

1. Inverter fault. 2. Over temperature. 3. Battery overvoltage.
4. DC bus fault. 5. Overload fault.

### 7. ON/OFF Button

- In condition of AC power normal, the unit will start up if pressing “ON” button.
  
- Under AC power abnormal, the unit shuts down if pressing “OFF” button.
- In Back-up mode, pushing “ON” button will make no sound.
- In condition of AC mode, push “ON” key and then test for back-up mode will activate for 10sec.

## 6.Communication interface

The definition and setup requirements for RS232 are as following:

BAUD RATE: 2400bps

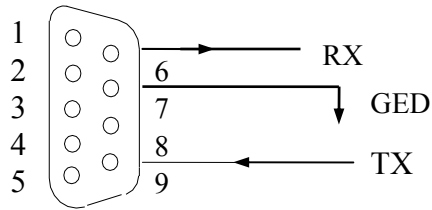
DATA LENGTH: 8bit

STOP BIT: 1bit

PARITY: NONE

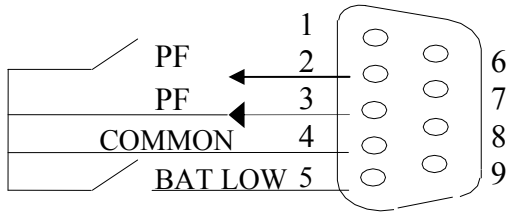
- **RS 232 interface** - pin assignment for the female DB9 connector:

<b>Pin #</b>	<b>Function explanation</b>	<b>I/O</b>
9	RS 232 Tx	OUTPUT
6	RS 232 Rx	INPUT
7	Ground	



● **NOVELL interface - pin definition for RS 232:**

Pin #	Function explanation	I/O
2	POWER FAIL - normally open status, will become closed during active.	OUTPUT
4	Reference GND for pin 2, and 5.	OUTPUT
5	BATTERY LOW - normally open status, will become closed during active.	OUTPUT
6	Remote shut down UPS - keep this pin at high voltage (+5V ~ +12V) 500 ms to shut down UPS. Activates at battery mode.	INPUT
7	Reference GND for pin 6.	INTPUT



## 7. Trouble Shooting

Please follow the guidelines below for precautions against common problems:

- Check UPS input plug and wiring.
- Check UPS input voltage.

Please prepare the information as following for service personnel:

- UPS model No. and serial No.
- Problem descriptions in detail.

## General Problems

<b>Problems</b>	<b>Possible causes</b>	<b>Resolution</b>
UPS no reaction while AC is connected	<ol style="list-style-type: none"> <li>1. Fuse at back panel blown</li> <li>2. no AC input</li> <li>3. UPS fault</li> <li>4. Battery damaged</li> </ol>	Replace fuse Check AC power Call for service Call service center to replace batteries
UPS no reaction while AC is connected, yet DC starts after pushing power on/off switch	<ol style="list-style-type: none"> <li>1. fuse at back panel blown</li> <li>2. no AC input</li> <li>3. UPS AC detecting circuit fails</li> </ol>	Replace fuse Check AC power Call for service
UPS goes into DC mode connected to AC	<ol style="list-style-type: none"> <li>1. AC voltage or frequency abnormal</li> <li>2. UPS AC detecting circuit fails</li> </ol>	Check AC power Call for service
Fault LED lit	<ol style="list-style-type: none"> <li>1. Inverter fault.</li> <li>2. Over temperature</li> <li>3. Battery overvoltage.</li> <li>4. DC bus fault.</li> <li>5. Over load fault.</li> </ol>	Call for service Check load situation
Battery can not provide normal back up power when there is no AC input	<ol style="list-style-type: none"> <li>1. Battery deteriorated</li> <li>2. Batteries not fully charged</li> <li>3. Battery charger damaged</li> </ol>	Call for service to replace batteries
After AC connected to UPS, alarm sounds short and fast beeps and UPS shut down	AC abnormal	Check AC power
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