

Single Phase Line Interactive sinewave Ups







Uninterruptible Power System

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Manual instruction

Thanks for purchasing our UPS, it is safe and reliable, so few maintenance is required.

Read this manual carefully and completely. It includes instructions of safety installation and operation. They will help your UPS obtain the longest life and service. This manual accounts the internal working principle and the relative protection functions. This manual also contains information about the usage of the equipment.

Please obey the instructions and all the warning stated in the manual or on the machine. Don't operate the machine before finishing reading the safety and operation instructions.

Note: Because of the continuous improvements, our products may differ somewhat from the contents included in this manual. You can contact local office to get the information when necessary.

1. Important Safety Warning

Please comply with all warnings and operating instructions in this manual strictly. Save this manual properly and read carefully the following instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.

1.1 Transportation

Please transport the UPS system only in the original package to protect against shock and impact.

1.2 Preparation

Condensation may occur if the UPS system is moved directly from cold to warm environment. The UPS system must be absolutely dry before being installed. Please allow at least two hours for the UPS system to acclimate the environment.

Do not install the UPS system near water or in moist environments.

Do not install the UPS system where it would be exposed to direct sunlight or near heater.

Do not block ventilation holes in the UPS housing

1.3 Installation

Do not connect appliances or devices which would overload the UPS system (es. laser printers) to the UPS output sockets.

Place cables in such a way that no one can step on or trip over them.

Do not connect domestic appliances such as hair dryers to UPS output sockets.

The UPS can be operated by any individuals with no previous experience.

Connect the UPS system only to an earthed shockproof outlet which must be easily accessible and close to the UPS system.

Please use only VDE-tested, CE-marked mains cable (es. the mains cable of your computer) to connect the UPS system to the building wiring outlet (shockproof outlet).

Please use only VDE-tested, CE-marked power cables to connect the loads to the UPS system

1.4 Operation

Do not disconnect the mains cable on the UPS system or the building wiring outlet (shockproof socket outlet) during operations since this would cancel the protective earthing of the UPS system and of all connected loads. The UPS system features its own, internal current source (batteries). The UPS output sockets or output terminals block may be electrically live even if the UPS system is not connected to the building wiring outlet. In order to fully disconnect the UPS system, first press the OFF button to disconnect the mains. Prevent no fluids or other foreign objects from inside of the UPS system.

1.5 Maintenance, Service and Faults

The UPS system operates with hazardous voltages. Repairs may be carried out only by qualified maintenance personnel.

Caution - risk of electric shock. Even after the unit is disconnected from the mains (building wiring outlet), components inside the UPS system are still connected to the battery and electrically live and dangerous.

Before carrying out any kind of service and/or maintenance, disconnect the batteries and verify that no current is present and no hazardous voltage exists in the terminals of high capability capacitor such as BUS-capacitors. Only persons are adequately familiar with batteries and with the required precautionary measures may replace batteries and supervise operations. Unauthorized persons must be kept well away from the batteries.

Caution - risk of electric shock. The battery circuit is not isolated from the input voltage.

Hazardous voltages may occur between the battery terminals and the ground. Before touching, please verify that no voltage is present!

Batteries may cause electric shock and have a high short-circuit current. Please take the precautionary measures specified below and any other measures necessary when working with batteries:

- remove watches, rings and other metal objects.

- use only tools with insulated grips and handles.

When changing batteries, install the same number and same type of batteries.

Do not attempt to dispose of batteries by burning them. This could cause battery explosion.

Do not open or destroy batteries. Escaping electrolyte can cause injury to the skin and eyes. It may be toxic.

Please replace the fuse only with the same type and amperage in order to avoid fire hazards.

Do not dismantle the UPS system.

2. Installation and setup

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. Please keep the original package in a safe place for future use.

2.1 Rear panel view



Segment 1 outlets: connect to non-critical loads. Will cut off the load when battery voltage reach to 11.0V/pcs. The Segment 1 cut off battery voltage can be set (ref. chapter 3.6 setting parameters). Segment 2 outlets: connect to critical loads

2.2 Ups installation

For safety consideration, sometimes the UPS is shipped out from factory without connecting battery wires. Before install the UPS, please follow below steps to re-connect battery wires if it is necessary.

PURE 1000



PURE 1000•2000•3000 LINE INTERACTIVE SINGLE-PHASE SINEWAVE

PURE 2000-3000



2.3 Ups configuration

STEP 1: UPS input connection

Plug the UPS into a two-pole, three-wire, grounded receptacle only.

STEP 2: UPS output connection

There two segments of outputs: segment 1 outlets and segment 2 outlets. Please connect non-critical devices to the segment 1 outlets and critical devices to segment 2 outlets. During power failure, you may extend the backup time to critical devices by setting shorter backup time for non-critical devices

STEP 3: UPS connections comunication Communication port:



With the monitoring software installed, you can schedule UPS shutdown/start-up and monitor UPS status through PC.

The UPS is equipped with intelligent slot perfect for either SNMP or AS400 card. When installing either SNMP or AS400 card in the UPS it will provide advanced communication and monitoring options.

STEP 4: EPO connection

Keep the pin 1 and pin 2 closed for UPS normal operation. To activate EPO function, cut the wire between pin 1 and pin 2.

STEP 5: Turn On the UPS

Press the ON button on the front panel for two seconds to power on the UPS.

Note: The battery charges fully during the first five hours of normal operation. Do not expect full battery run capability during this initial charge period.

STEP 6: Software installation

For optimal computer system protection, install UPS monitoring software to fully configure UPS shutdown. Please use software CD or go to website http://www.megatec.com.tw/Download.htm.

2.4 Battery replacement

NOTICE: This UPS is equipped with internal batteries and user can replace the batteries without shutting down the UPS or connected loads.(hot-swappable battery design) Replacement is a safe procedure, isolated from electrical hazards.

CAUTION!! Consider all warnings, cautions, and notes before replacing batteries. Note: Upon battery disconnection, equipment is not protected from power outages.

PURE 1000









Remove front panel

Unscrew the battery box front panel

Pull out the battery box

Disconnect battery wires pulling the connector







 \checkmark

Remove the battery box top cover and replace the internal batteries

After batteries replacement, insert the battery box in its original position. the frontal panel firmly

Fix frontal panel

PURE 2000-3000



panel





Disconnect battery wires pulling the connector Unscrew the battery box front panel



Pull out the battery box



2.5 Battery Kit assembly (optional)

NOTICE: Please assemble battery kit first before installing it inside of UPS. Please select correct battery kit procedure below to assemble it.

2 BATTERY KIT:



Remove adhesive tapes



Put top plastic shells on assembled battery packs



Connect all battery terminals by following above chart. Put assembled battery packs on one side of plastic shells



The battery kit is ready

4/6 BATTERY KIT:



Unscrew the battery bracket and prepare new batteries



Connect all battery terminals (above picture) and put batteries into the bracket by following above picture.



Screw the battery bracket cover



The battery kit is ready

3. Operation

3.1 Button operation



TASTO	DESCRIZIONE DELLA FUNZIONE		
Tasto UP/MENU Short press (within one second) to show preview parameters (last for two seconds) for enter or exit setting menu			
Tasto DOWN/TEST	Short press (within one second) to show next parameter item. Long		
	press (last for two seconds) to start manual battery test.		
Tasto ON/OFF	Press and hold this key for more than 2 seconds to turn ON / OFF the UPS.		

3.2 LED indicator

LED	DESCRIPTION	
\sim	UPS is normally powered by utility or battery inverter mode	
Green		
Yellow	UPS in alarm mode. These situations appear when the UPS is under standby mode, bypass mode, battery mode, batteries over charged, charger fault, fan stop working, batteries low, etc	
Red	UPS in fault mode. These situations appear when the UPS is under: Overload over time, inverter fault, over temperature fault, etc.	

NOTE: when the UPS is switched ON or OFF, these indicators will turn ON and OFF sequentially.

3.3 LCD panel

SECTION	DESCRIPTION	GRAPHIC	
Numerical value	Shows the corresponding numeric value of the displayed parameters (output, load, inverter temperature, input, battery)	BYPASS	
Mini diagram	Display the operation status of the UPS and shows the capacity of the battery and load.	BYPASS ENABLE DISABLE NUTE ON OFF	

3.4 Parameters inquiring

Press UP / DOWN keys to show preview/next parameters item. The inquired items include input, battery, output, load, inverter temperature.

ITEM	DESCRIPTION	GRAPHIC
Output	Display the output voltage and output frequency of the UPS. As the graphic shown, the output voltage is 230V, the output frequency is 50Hz.	AUTOSTART ON BYPASS DISABLE DISABLE DISABLE DIF 50Hz NUTE OFF HZ
Load	Display the numerical value of the active power (W) and apparent power (VA) of the load. For example, as the following graphics shown: the WATT of the load is 1.1KW, VA is 1.9KVA. When disconnect load, it is a normal phenomenon to show a small numerical value of W and VA.	AUTOSTART ON BYPASS MUTE OFF WITE OFF KW
Temperature	Display the temperature of the inverter in the UPS. As the following graphics shown: the temperature of the inverter is 40°C.	AUTOSTART ON BYPASS NUTE OFF C C C C C C C C C C C C C C C C C C
Input	Display the voltage and frequency of the input. As the following graphics shown: the input voltage is 236V, input frequency is 50.1Hz.	A ALITCSTART ON BYPASS DISABLE
Battery	Display the voltage and capacity of the battery. As the following graphics shown: the battery voltage is 80.2V, the capacity of battery is 100% (the capacity of battery is approximately reckoned according to the battery voltage).	AUTOSTART ON BYPASS MUTE OFF VDC VDC W/%

3.5 Operating modes

MODE	DESCRIPTION	INDICATOR
Line Normal Mode	When input AC mains is within input range, UPS will work in line mode, charge the battery and protect the load.	AUTOSTART ON BYPASS DISARLE DI
Line Boost Mode	When AC is low, the UPS works in line boost mode, charge the battery and protect the load. There are two boost stages.	

Line buck Mode	When input AC mains is high, the UPS works in line buck mode, charge the battery and protect the load.	
Battery Mode	When input AC mains is output of line range, the UPS works on battery mode. The green LED is on the yellow warning LED blink once 4 seconds and buzzer beep and if the battery voltage is low, blink once 1 second and buzzer beep.	AUTOSTART ON BYPABS DISABLE DI
Fault Mode	When the UPS has fault. The red LEDs is ON and the buzzer beeps. The UPS will turn to fault mode. The UPS cuts off the output and the LCD display fault codes. NOTE: As for corresponding information of the fault code, please refer to 3.7 Faults Reference Code.	AUTOSTART ON BYPASS UISABLE NUTE OFF
Standby Mode	When UPS is plugged into line and not turn ON, the UPS will work in standby mode to charge the battery. No indicator displays on this mode.	

3.6 Setting parameters

In normal mode, press the UP / MENU key for at least two seconds to enter the settings menu. Press the UP - DOWN keys to scroll through the available menus (blinking written). Press for two seconds to enter the options of the chosen parameter, scroll through the available parameters using the UP - DOWN keys. Confirm the parameter by pressing the UP / MENU key for two seconds and press for another two seconds to exit. Repeat the sequence to make other changes.

If no command is made within 50 seconds, the display returns to the initial screen.

ITEM	ITEM DESCRIPTION G	
OPU (Output Voltage)	Selectable Output Voltage. Available selections: 208V - 220V - 230V - 240V.	AUTOSTART ON BYPASS DISABLE MUTE OFF
Abt (Automatic Battery Test)	Available selections: ON or OFF. When ON is selected, the UPS performs a battery test every 30 days for about 10 seconds. Selecting OFF deactivates the function.	AUTOSTART ON BYPASS DISABLE MUTES OFF MUTES OFF
bPS (ByPass)	Available selections: ON or OFF. When ON is selected, the Bypass function is enabled, When OFF is selected it is disabled.	AUTOSTART ON BYPASS UINE BYPASS DISABLE DISABL
ISt	Available selections: 10.5 - 11.0 - 11.5. The UPS is equipped with two series of output sockets, SEGMENT1 and 2 as described in chapter 2.1 and 2.3. When the battery voltage reaches this value the UPS will cut off voltage at the SEGMENT1 output sockets (non-critical loads).	AUTOSTART ON BYPASS DISABLE MUTE OFF
Eod (End of Discharge)	Available selections: 9.5 - 10.0 - 10.5 - 11.0. When the battery voltage reaches this value the UPS does not supply more output voltage.	AUTOSTART ON BYPASS BYPASS DISABLE OFF DISABLE

3.7 Falult reference code

Fault events	Fault occurring mode Line mode	Fault occurring mode Battery mode
Bus fail		08
Inverter high	00	01
Inverter low	02	03
Output short		11
Overload	06	07
Battery over	14	15
Temperature high	08	09

4. Troubleshooting

If the UPS system does not operate correctly, please solve the problem by using the table below:

SYMPTOM	POSSIBLE CAUSE	REMEDY	
No indication and alarm even	The AC input power is not connected well.	Check if input power cord firmly connected to the mains.	
though the mains is normal.	The AC input is connected to the UPS output.	Plug AC input power cord to AC input correctly.	
EPO displayed on LCD and alarm is sounding.	EPO function is activated.	Set the circuit in close position to disable EPO function.	
Load icon flashes on LCD display and alarm is sounding every second.	The external or internal battery is incorrectly connected.	Check if all batteries are connected well.	
Overload codes displayed on LCD display and alarm is sounding every second.	UPS is overload	Remove excess loads from UPS output.	
Fault code is shown as 14 and alarm is continuously sounding.	The UPS shut down automatically because short circuit occurs on the UPS output.	Check output wiring and if connected devices are in short circuit status.	
Fault code is shown as 01, 03, 08, 09 on LCD display and alarm is continuously sounding.	A UPS internal fault has occurred.	Contact your dealer	
Battery backup time is shorter than nominal value	Batteries are not fully charged	Charge the batteries for at least 5 hours and then check capacity. If the problem still persists, consult your dealer.	
	Batteries defect	Replace the battery.	

5. Storage and maintenance

The UPS system contains no user-serviceable parts. If the battery service life (2/3 years) has been exceeded, the batteries must be replaced. In this case, please contact your dealer.

Be sure to deliver the spent battery to a recycling facility.

Before storing, charge the UPS 5 hours. Store the UPS covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

Storage Temperature	Recharge Frequency	Charging Duration	
-25°C - 40°C	Every 3 months	1-2 hours	
40°C - 45°C	Every 2 months	1-2 hours	

6. Technical specification

MODEL		PURE1000 PURE2000 PUR		PURE 3000	
CAPACITY		1000VA/800W	2000VA/1600W	3000VA/2400W	
INPUT		· · ·			
Voltage			208/220/230/240VAC		
Acceptable Volt	age Range		160-290VAC		
Frequency Rang	ge		50/60Hz (Auto sensing)		
OUTPUT					
Output Voltage			208/220/230/240VAC		
Voltage Regulat	tion(Batt.Mode)		+/- 3% (Before battery alarm)		
Frequency Rang	ge (Batt.Mode)	50Hz or 60Hz +/- 4.0Hz			
Current Crest R	atio		3:1		
Harmonic Disto	rtion	3% @ 1	00% linear laod , 5% @ 100% non-l	inear load	
Transfer Time			Typical 6ms, 10ms max		
Waveform (Bat	tery Mode)		Pure sinewave		
EFFICIENCY					
Normal Mode			97%		
Buck & Boost N	lode		95%		
Battery Mode			85%		
BATTERY					
	Type & Number	12V/9Ah*2	12V/9Ah*4	12V/9Ah*6	
	Charging Current(max.)		1.0A		
Standard Model	Charging Voltage	27.4VDC+/-1%	54.8VDC+/-1%	82.1VDC+/-1%	
	Typical Recharge Time		5 hours recover to 90% capacity	,	
PROTECTION					
Full Protection		Overload,o	utput short, discharge, and overch	arge protection	
INDICATORS					
LED Display		ACmode, battery mode, buck b	oostmode, battery level, load level	, overload, fault and low battery	
. ,					
LCD Display(Op	tional)	AC mode , battery mode , buck boost mode, battery level, load level, input voltage and frequency, output voltage and frequency, overload , fault and low battery			
ALARM					
Battery Mode			sounding every 10 seconds		
Low Battery		sounding every second			
Overload		sounding every 0.5 second			
Fault		continuously sounding			
PHYSICAL					
Standard Model	Dimension D*W*H(mm)	400*144*215	468*1	191*345	
	Net Weight(kg)	10	21	24	
ENVIRONMENT					
Humidity		0-90% RH @ 0-40°C (Non-condensing)			
Noise Level			Less than 45dB		
MANAGEMENT	r				
Smart RS-232/USB		Support Windows [®] 2	000/2003/XP/Vista/2008,Windov	vs [®] 7/8,Linux,Unix and MAC	
Optional card			SNMP		
STANDARDS					
		IEC/EN62040-1	IEC/EN62040-2 IEC/EN62040-3	IEC/EN60950-1	

6.1 Accessories

MODEL	PURE 1000	PURE 2000	PURE 3000
Instruction manual	•		
Software	•		
RS232 cable	1		
USB cable	1		
Input cable (IEC)	1		
Output cable	2 (IEC)	2 (IEC)	
		1 Adapter High Current plug	

6.2 RS232 port

The present UPS provides a standard DB9 communication interface on the rear panel, the definition of the pins is as follows:



PIN	DEFINITION
1-4-6-7-8-9	Not used
2	ТХ
3	RX
5	GND

When connecting the UPS to the PC via RS232 cable, it is necessary to use the standard RS232 cable, the exact connections of the cable are as follows:

CONNETTORE 1 (female) serial port PC side	CONNETTORE 2 (male) serial port UPS side	
2	2	
3	3	
5	5	

6.3 Optional interface communication

1. USB communication interface

Install UPSilon2000 monitoring software supplied with the UPS. You can check directly the UPS parameters from the PC. If both the RS232 cable and the USB cable are supplied, as only one is possible to use, the USB cable is recommended.

2. Intelligent slot

The following boards can be installed in the UPS intelligent slot: SNMP board. The card can be removed or inserted with the UPS ON. Depending on the needs of users you can use any of the listed tabs.

2.1 SNMP card: When you connect to the internet with the SNMP card, you communicate with the computer to monitor the power network and the status of the UPS remotely.

NOTE:

Remove the metal cover (Intelligent Slot) before installing the optional board.

The optional card slot can be used simultaneously with the RS232 port.

For the operating instructions of the SNMP card, refer to the instructions supplied with the card











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