ENDURO
1-3KVA, 1:1 Phase
Pure Sinewave On-Line UPS
USER MANUAL

4256-8271 A

Publish statement

Thank you for purchasing the Enduro UPS series.
This series UPS is an intelligent, single phase in single phase out, high frequency online UPS designed by our R&D team who is with years of designing experienceson UPS. With excellent electrical performance, perfect intelligent monitoring and network functions, smart appearance, complying with EMC and safety standards, The UPS meets the world's advanced level.

Read this manual carefully before installation
This manual provides technical support to the operator of the equipment.
The ENDURO range of UPS systems are intended for installation in a contaminant free environment with a temperature range between 0°C and 40°C.

Table of Contents

1. Important Safety Warning

SAVE THESE INSTRUCTIONS. This manual contains important instruction that should be followed during installation and operation of the UPS and batteries.

Do not operate this unit before reading through all safety information and operating instructions carefully

The UPS contains its own power source (the battery). The power outlets may be energized even if the system is disconnected from the AC power source.

Dangerous voltage levels and high temperature components are present within the system.
The UPS and its External Battery Modules should be opened exclusively by suitably trained and qualified personnel.

The batteries supplied within the system are valve regulated lead acid (VRLA) and contains small amounts of toxic materials. The batteries are certified as complying with UN2800 Special Provision A67 of the International Air Transport Association (IATA) Dangerous Goods Regulations.

Safety instructions in this manual act as a supplementary for the local safety instructions. PSS Distributors will not assume the liability that caused by disobeying safety instructions.

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 other heat sources.
Do not block ventilation holes in the UPS housing.

1-3 Installation
- Do not connect appliances or devices with high inrush currents to the UPS system (e.g. laser printers, compressors, fridges and motors).
- 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.
- Use only Australian approved AC cables to connect the UPS system to the building supply and to connect the loads to the UPS system.
- When installing the equipment, it should ensure that the sum of the leakage current of the UPS and the connected devices does not exceed 3.5mA.

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 remove 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 may be energized even if the UPS system is not connected to the building wiring outlet.

To fully disconnect the UPS system, first press the OFF/Enter button to disconnect the mains. Isolate the UPS and check for hazardous voltage upstream and downstream during lockout-tagout operation.

Prevent fluids or other foreign objects from entering the UPS system.

1-5 Maintenance

- The UPS system operates with hazardous voltages. Repairs and maintenance must be carried out by qualified UPS 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 at within the system.
- 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**
  - 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.
  - The battery supplied with the system contains small amounts of toxic materials.
  - Use appropriate PPE when handling the batteries.
  - If a battery case is damaged there is potential exposure to sulfuric acid and lead.
  - When replacing batteries, replace with the same type, capacity and number of batteries or battery packs.
  - Do not mix old and new batteries and ensure that the batteries have the same state of charge and internal resistance.
  - Read the battery manufacturer's Safety Data Sheet prior to replacement.
  - Dispose in accordance with federal, state, or local regulations.
  - Recycle wherever possible
- Maintenance
  - The UPS should be regularly maintained (12 Months, 6 Months etc)
  - Maintenance intervals are dependent on the operating environment and the application.
  - PSS offers a wide range of cost-effective preventative maintenance solutions.

|	MAINTENANCE	SUPPORT	LABOUR	PARTS	BATTERIES
Non Contract - ONE-OFF Service	✓	✗	✗	✗	✗
BASIC CONTRACT	✓	✓	✗	✗	✗
COMPREHENSIVE CONTRACT	✓	✓	✓	✓	✗
COMPREHENSIVE PLUS	✓	✓	✓	✓	✓

2. Installation and setup

NOTE: Before installation, please inspect the unit. Be sure that nothing inside the package has been damaged. Please keep the shipping cartons and packing materials in a safe place for future use.

2-1 Unpack checking

- When removing the UPS or EBM from the packaging:
  - Do not lift the UPS from the front panel.
  - Do not lean the UPS when moving it out from the packaging.
  - The UPS is heavy. Removing it from the carton requires a minimum of two people.
- Check to see if the UPS is visibly damaged during the transportation, do not switch on the UPS if any damage found. Please contact the supplier right away.
- Verify that the following additional items are included with the UPS:
  - User manual
  - Software Suite CD
  - USB cable
  - Input AC Power cord
  - base brackets kit (tower installation)
  - Rack brackets (rack installation)

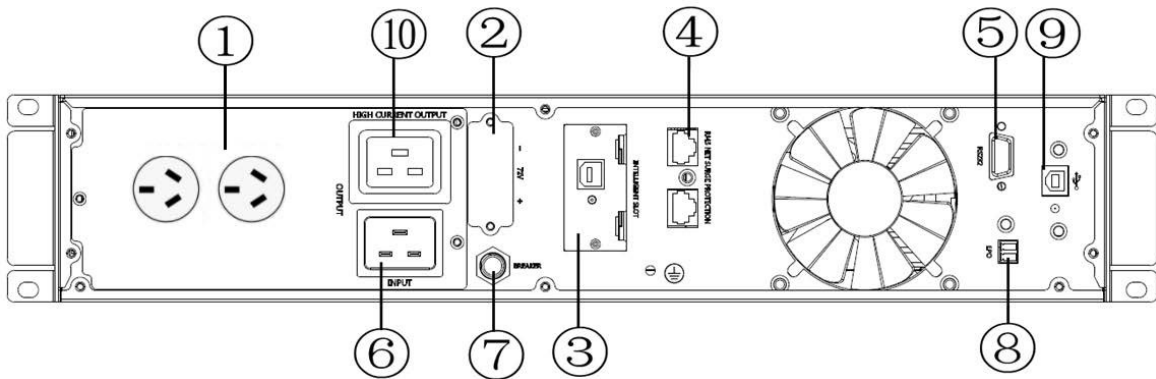## 2-2 Real panel view

EN1000 - 1KVA
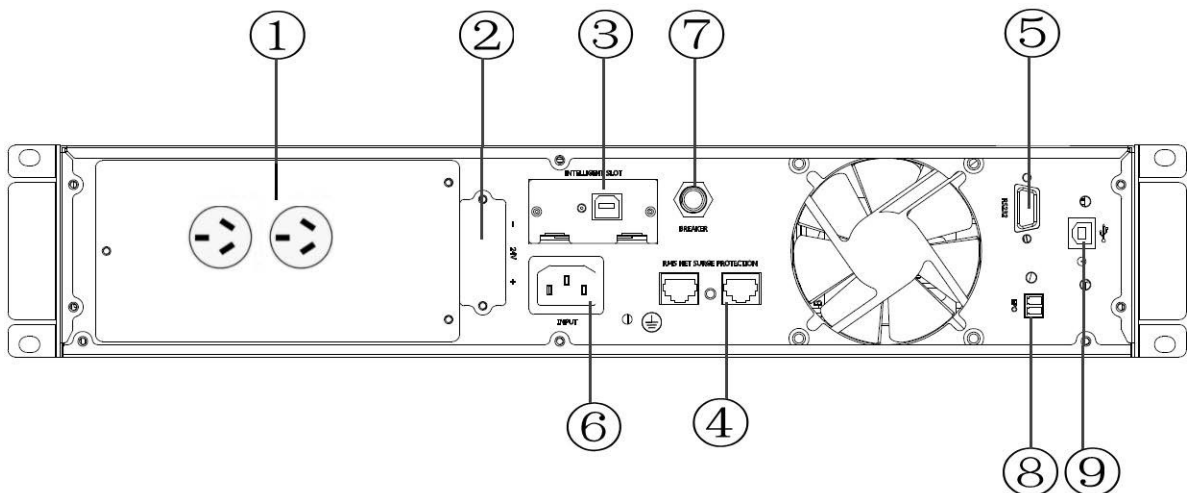
EN2000 - 2KVA
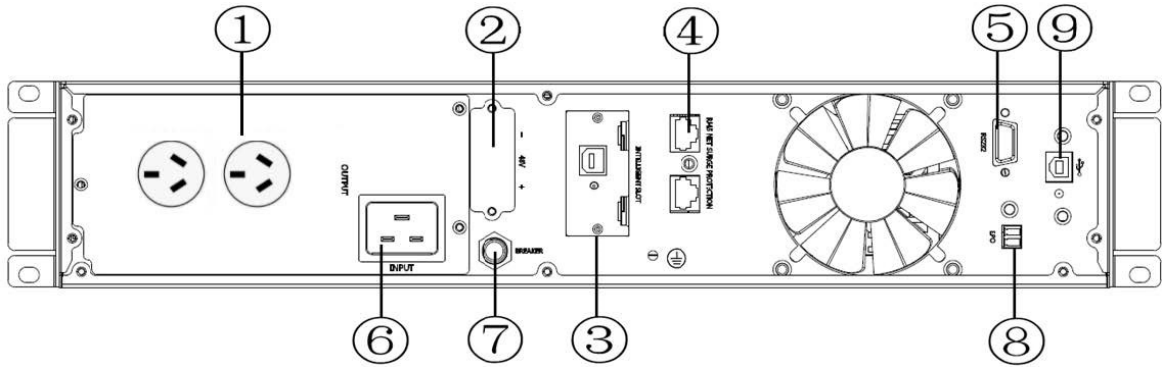
EN3000 - 3KVA

1. Output receptacles (10A)

2. External Battery Connector

3. SNMP intelligent slot (optional SW006 SNMP card)

4. Network /Fax/Modem Surge Protection

5. RS-232 communication port

6. AC input receptacle

7. Input resettable fuse

8. Connector for EPO (Emergency Power Off)

9. USB communication port

10. Output receptacle (16A)
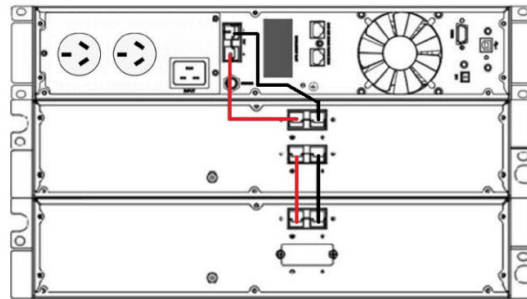
2-3 Installing the UPS

- # Rackmount installation
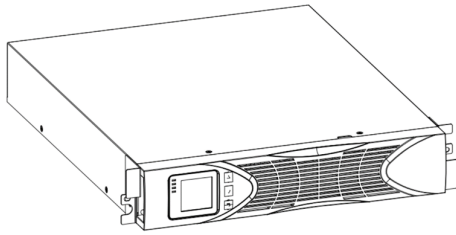
- If installing optional external battery module(s) EBM(S), make sure to install the EBM(S) directly below the UPS module and the connector(s) are securely plugged in as detailed below.
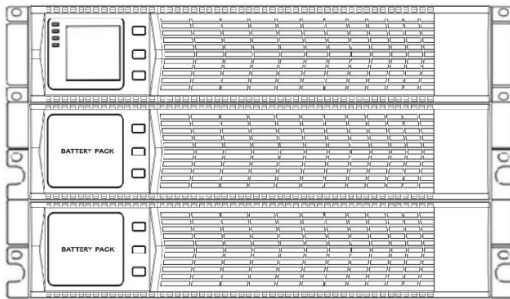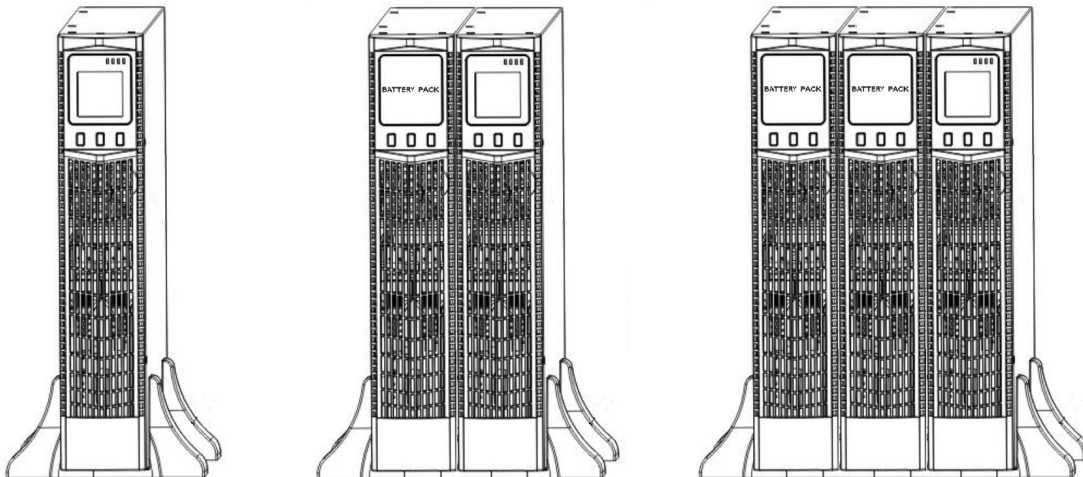

FRONT VIEW   REAR VIEW

- Optional adjustable rack mounting kits, part number RK1000 are available from your Enduro supplier.

RK1000

- # Tower Installation

Connect the base brackets together for a single unit installation.
Utilize the 1U base extender(s) to add

2-4 UPS startup and turn off

• Startup operation

1. Turn on the UPS ONLINE mode

> **NOTE** *Verify that the total equipment ratings do not exceed the UPS capacity to prevent an overload alarm.*

a) Once mains power is plugged in, the UPS will startup in bypass mode (Bypass LED lit)
b) Press and hold the ON key for more than half a second to start the UPS.
c) The inverter will start, and the UPS will perform a self-test.
d) On completion of the self-test, the green LED will be lit, indicating the UPS is working ONLINE mode.

2. Turn on the UPS by DC without mains power
a) Ensure that the earth is connected via the AC supply cord.
b) Press and hold the ON key for more than half a second to start the UPS.
c) The inverter will start, and the UPS will perform a self-test.
d) On completion of the self-test, the amber battery LED will be lit, indicating the UPS is working ONLINE mode but drawing power from the batteries. An audible alarm will be heard. the self-test, the corresponding LED lights andthe UPS is working in battery mode.

• Turn off operation

1. Bypass the UPS
a) Press and hold the OFF key for more than half a second to turn off the inverter.
b) The Green ONLINE LED will extinguish, and the Bypass LED will be lit.
2. Turning off the UPS
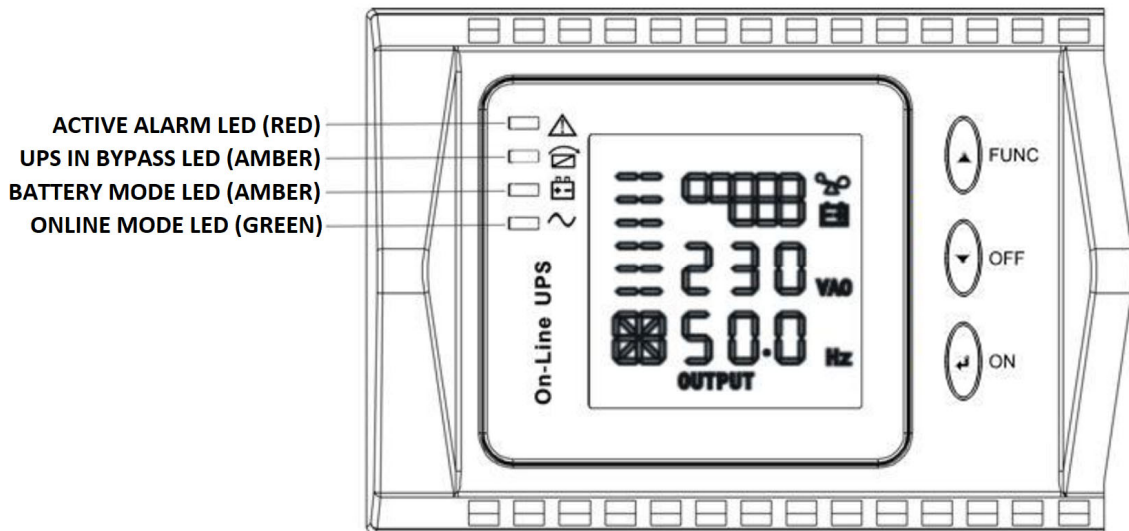c) Switch off the AC power supplying the UPS.
d) The UPS will shut down.

2-5 Configuring Battery Settings

- • Set the UPS for the number of EBMs installed.
- • To ensure maximum battery runtime, configure the UPS for the correct number of EBMs, refer to the table below for the appropriate setting.
- • Refer to UPS Settings, section 3.3 screen number 4.

All UPS and EBM Cabinets	Battery Capacity
UPS only (internal batteries)	9Ah（default）
UPS+1EBM	27Ah
UPS+2EBMs	45Ah
UPS+3EBMs	63Ah
UPS+4EBMs	81Ah
NOTE The UPS contains 1 battery string; each EBM contains 2 battery strings.	

2-6 LCD control panel

ACTIVE ALARM LED (RED)
UPS IN BYPASS LED (AMBER)
BATTERY MODE LED (AMBER)
ONLINE MODE LED (GREEN)

2-7 Setup the UPS

Step 1: UPS input connection
- Using the AC power cord supplied, plug the UPS into the AC supply socket.
- Avoid the use of multiplugs and extension leads.

Step 2: UPS output connection
- Plug the load devices into the UPS.

Step 3: Communication connection
To allow for unattended UPS shutdown/start-up and status monitoring, connect the communication cable one end to the USB port and the other to the communication port of your PC. 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 Relay card. When installing either SNMP (part number SW006) or Relay card (part number SW011), it will provide advanced communication and monitoring options.

Communication ports:
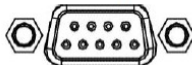
USB port   **RS-232 port**   **Intelligent slot**

Step 4: Turn on the UPS
Refer to section 2.4
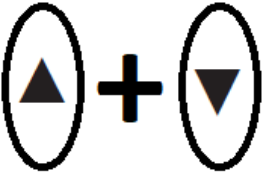Note: The battery charges fully during the first five hours of normal operation.
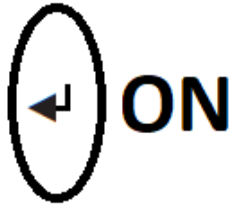
Step 5: Install software
For optimal computer system protection, install UPS monitoring software to fully configure UPS shutdown. You may insert provided CD into CD-ROM to install the monitoring software.
The software can be download at **http://www.megatec.com.tw/Download.htm**
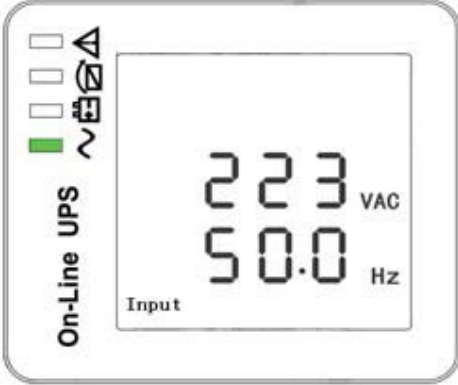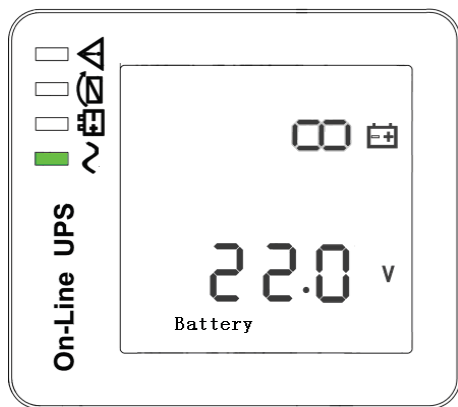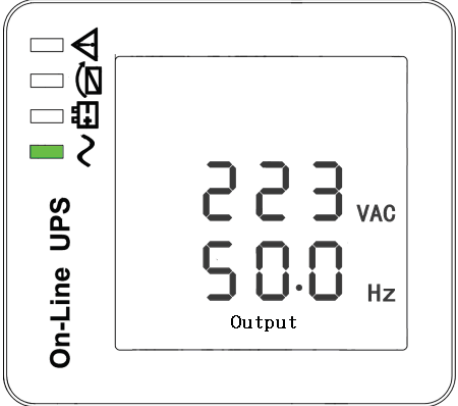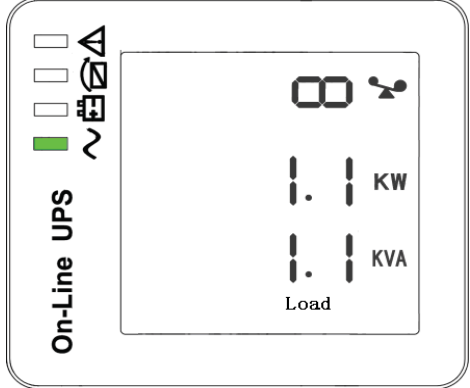
3. Operations

3-1 Button Operation

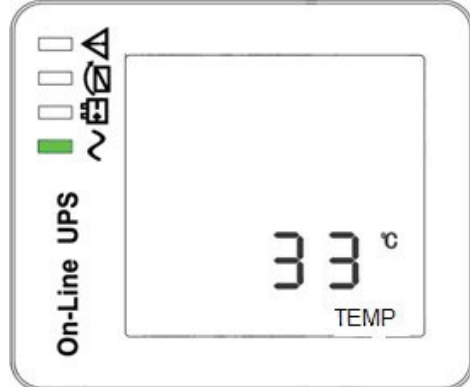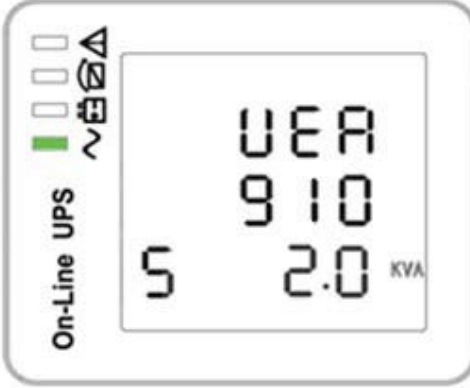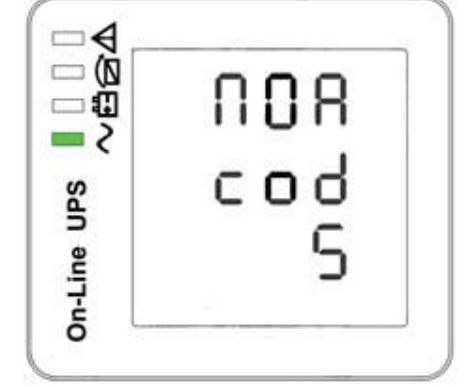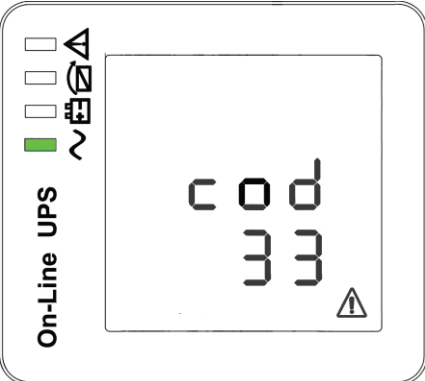| Button	Function
(ON)	Turn on the UPS: Press and hold ON button forat least 2 seconds to turn on the UPS. Switch the UPS from bypass mode to ONLINE mode. UPS Setting Mode Choosing different value: When the UPS enters the setting mode, press this button to select the required value.
(OFF)	Turn off the UPS: Press and hold button atleast 2 seconds to turn off the UPS in battery mode. Switch the UPS from ONLINE mode to bypass mode. UPS Setting Mode Down key: Press button to display the next selection.
(FUNC)	Switch LCD message: Press button to change the LCD message for input voltage,input frequency, battery voltage, output voltage and output frequency etc. Rotate Key: Hold for 10 seconds to rotate the LCD screen. • Mute the mains failure alarm: Hold button for at least 5 seconds to disable or enable the alarm system. UPS Setting Mode Up key: Press button to display previous selection. Switch to UPS self-test mode: Press button for 2 seconds.
(▲)+(▼)	Access UPS Setting Mode Press buttons simultaneously for 5 seconds.

3-2 LCD display

Part one: Rack display

There are 8 interfaces available in the LCD display.

Item	Interface Description	Content Displayed
01	Input voltage	223 VAC 50.0 Hz Input
02	Battery voltage	22.0 V Battery
03	Output voltage	223 VAC 50.0 Hz Output

04	Load	 On-Line UPS 1.1 KW 1.1 KVA Load
05	Environment Temperature	 On-Line UPS 33 ℃ TEMP
06	Firmware Version& UPS model	 On-Line UPS UEA 910 S 2.0 KVA
07	CODE Refer to section 3.5	 On-Line UPS NOA cod S
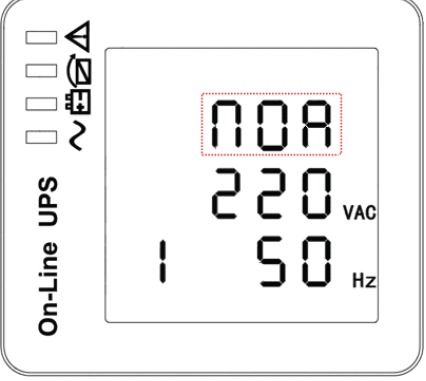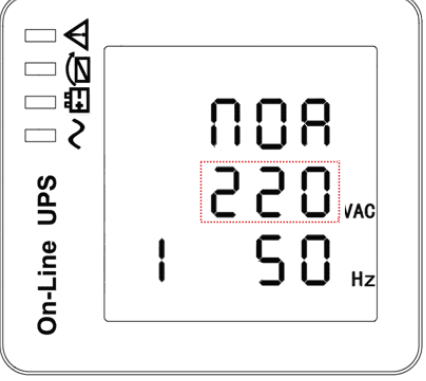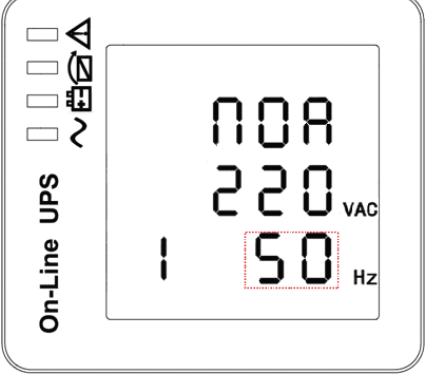
08	Alarm Codes Refer to section 3.6	**On-Line UPS** c o d 3 3 ⚠
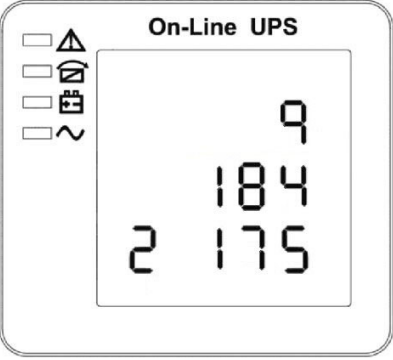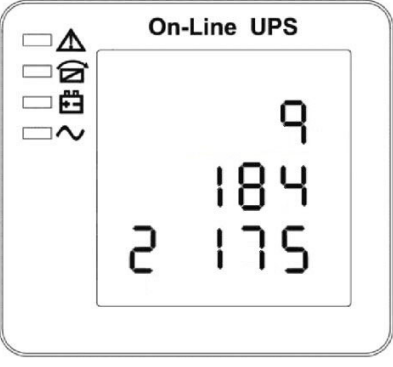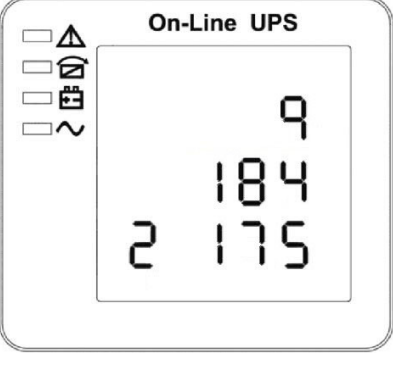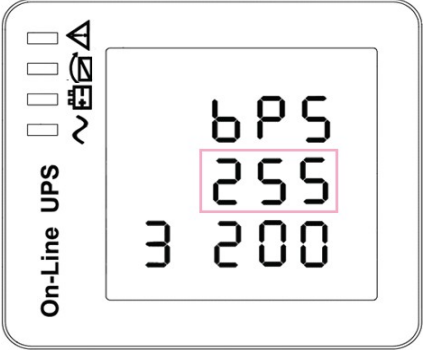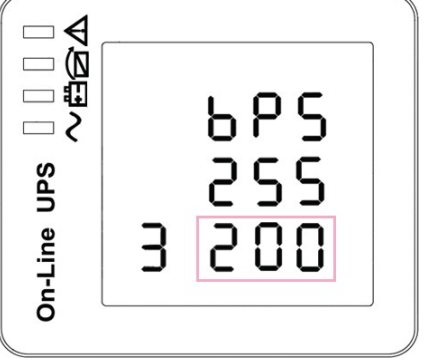
3-3 UPS settings

The UPS should come preset and not require any adjustments.
The setting function is controlled by the three buttons as detailed below.
To access the setup, press the After the UPS turn ON, press buttons ▲ ✚ ▼ for 5 seconds.

Item	Settings	Content display
01	**MODE** Press Enter button ◀┘ to change the setting (NOA or ECO or CF). Press UP button ▲ to select the previous setting. Press DOWN ▼ button to select thenext setting.	∩OA 220 VAC 1 50 Hz On-Line UPS
02	**OUTPUT VOLTAGE** Press Enter button ◀┘ to change the setting (200V – 240V). Press UP button ▲ to select the previous setting. Press DOWN ▼ button to select thenext setting.	∩OA 220 VAC 1 50 Hz On-Line UPS
03	FREQUENCY Press Enter button ◀┘ to change the setting (50Hz / 60Hz). Press UP button ▲ to select the previous setting. Press DOWN ▼ button to select thenext setting.	∩OA 220 VAC 1 50 Hz On-Line UPS

04	BATTERY CAPACITY Press Enter button ⏎ to change the setting. Default is 9Ah refer to section 2.5. Press UP button ▲ to select the previous setting. Press DOWN ▼ button to select thenext setting.	On-Line UPS 9 184 2 175
05	LOW VOLTAGE ALARM Press Enter button ⏎ to change the setting. Default setting: 185V / Cell Press UP button ▲ to select the previous setting. Press DOWN ▼ button to select thenext setting.	On-Line UPS 9 184 2 175
06	EOD Press Enter button ⏎ to change the setting. Default setting: 185V / Cell Press UP button ▲ to select the previous setting. Press DOWN button ▼ to select the previous setting.	On-Line UPS 9 184 2 175

07	**Bypass Voltage Upper limit** Press Enter button ◀╛ to change the setting. (230-264Vac) Press UP button ▲ to select the previous setting. Press DOWN button ▼ to select the previous setting.	bPS 255 3 200 On-Line UPS
08	**Bypass Voltage Lower limit** Press Enter button ◀╛ to change the setting. (170-220Vac) Press UP button ▲ to select the previous setting. Press DOWN button ▼ to select the previous setting.	bPS 255 3 200 On-Line UPS

3-4 Operating Mode Description

Mode	Description	Indicator
Line Mode	• The green LED is on. ○ Input AC mains is within limits, the UPS will function in ONLINE mode.	
Battery Mode	• The battery amber LED is on. ○ The alarm beeps once every 4 seconds. ○ Input AC mains is out of limits. • The battery amber LED flashes. ○ The battery voltage has reached the limit set in section 3.3 (05) • UPS power off ○ The battery voltage has reached the limit set in section 3.3 (06) • UPS will auto-restart when the mains recover.	

Bypass Mode	• The bypass amber LED is on. • The UPS is in bypass.	
ECO Mode	• The bypass amber LED is on. • When ECO enabled and the AC mains is in range, the UPS will work on ECO Mode. • If the AC mains is out of range the UPS will transfer to ONLINE mode.	
Fault Mode	• The warning red LED is on and the alarm beeps. • The UPS is in fault mode. • NOTE: please refer to alarm or fault reference code.	

3-5 Operational Status and Mode(s)

item	Content Displayed
2	Standby Mode
3	No Output
4	Bypass Mode
5	Utility Mode
6	Battery Mode
7	Battery Self-diagnostics
8	Inverter is starting up
9	ECO Mode
10	EPO Mode
11	Maintenance Bypass Mode
12	Fault Mode

3-6 Alarm or Fault reference codes

Event log	UPS Alarm Warning	Buzzer	LED
2	Inverter fault (Including Inverter bridge is shorted)	Beep continuously	Fault LED lit
9	Fan fault	Beep continuously	Fault LED lit
12	Self-test fault	Beep continuously	Fault LED lit
13	Battery Charger fault	Beep continuously	Fault LED lit
15	DC Bus over voltage	Beep continuously	Fault LED lit
16	DC Bus below voltage	Beep continuously	Fault LED lit
17	DC bus unbalance	Beep continuously	Fault LED lit
18	Soft start failed	Beep continuously	Fault LED lit
19	UPS Inside Over Temperature	Twice per second	Fault LED lit
20	Heat sink Over Temperature	Twice per second	Fault LED lit
26	Battery over voltage	Once per second	Fault LED blinking
29	Output Short-circuit	Once per second	Fault LED blinking
30	Input current limit	Once per second	Fault LED blinking
31	Bypass over current	Once per second	BPS LED blinking
32	Overload	Once per second	INV or BPS LED blinking
33	No battery	Once per second	Battery LED blinking
34	Battery under voltage	Once per second	Battery LED blinking
35	Battery low pre-warning	Once per second	Battery LED blinking
36	Overload time out	Once per 2 seconds	Fault LED blinking
37	DC component over limit.	Once per 2 seconds	INV LED blinking
39	Main's volt. Abnormal	Once per 2 seconds	Battery LED lit
40	Mains freq. abnormal	Once per 2 seconds	Battery LED lit
41	Bypass Not Available		BPS LED blinking

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 though the mains is normal.	The AC input power isnot connected well.	Check if input power cord firmly connected to the mains.
	The AC input is connected to the UPS output.	Plug AC input power cordto AC input correctly.
Alarm code is shown as"33"and battery led blinking.	The external or internal battery is incorrectly connected.	Check if all batteries are connected well.
Alarm code is shown as "26"and battery led blinking.	Battery voltage is too high or the charger is fault.	Contact your dealer.
Alarm code is shown as "34"and battery led blinking	Battery voltage is toolow or the charger is fault.	Contact your dealer.
Alarm code is shown as "32"and INV or BYPASS led blinking.	UPS is overload	Remove excess loads fromUPS output.
Alarm code is shown as "29"and FAULT led light.	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.
Alarm code is shown as "9"and FAULT led light.	Fan fault.	Contact your dealer.
Alarm code is shown as "01,02, 15,16,17,18"	A UPS internal faulthas occurred.	Contact your dealer.
Battery backup time is shorterthan nominal value	Batteries are not fully charged	Charge the batteries for atleast 5 hours and then check capacity. If the problem still persists, consult with your dealer.
	Batteries defect	Contact your dealer to replace the battery.

5. Storage and Maintenance

- **Operation**

  The UPS system contains no user-serviceable parts. If the battery service life (3~5 years at 25°C ambient temperature) has been exceeded, the batteries must be replaced. In this case, please contact your dealer.

- **Storage**

  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. Options

SW006 SNMP   SW011 Relay Card

- Loosen the 2 torque screws (on each side of the card).
- Carefully insert the SNMP / Relay card into the slot and lock the screws

SW006 SNMP
- NetAgent is a software tool to remotely monitor and manage the UPS.
- The software can be download at **http://www.megatec.com.tw/Download.htm**

SW011 Relay Card

1	Common		
2	UPS Active	Open when UPS Active	2 & 1 open
3	Mains Fail	Open when Mains Fails	3 & 1 open
4		Close when Mains Fails	4 & 1 close
5	Battery Low	Open when Battery Low	7 & 1 open
6		Close when Battery Low	8 & 1 close
7	General Alarm	Open when UPS Alarm	7 & 1 open
8		Close when UPS Alarm	8 & 1 close
9	Bypass Active	Open when Bypass Active	9 & 1 open
10		Close when Bypass Active	10 & 1 close
11	UPS Fault	Open when UPS Fault	11 & 1 open
12		Close when UPS Fault	12 & 1 close

7. Contacts & Links

7-1 Warranty Registration

Please register your warranty with the serial number provided on the below link.
http://www.pssdistributors.com.au/ups-warranty-registration/

7-2 PSS Repair/RMA Form

https://pssdistributors.com.au/repair-rma/

7-3 Service Enquiries

Email: Service@pssdistributors.com.au
Contact: 1300 882 447

8. Specification

Specifications			
Model	EN 1000	EN 2000	EN 3000
Capacity	1kVA/900W	2kVA/1800W	3kVA/2700W
Input			
Voltage range	230V +/- 20%		
Frequency range	45Hz - 65Hz		
Phase	Single phase		
Power factor	⩾0.98		
Breaker	6A	10A	15A
Input socket	IEC C14 10A	IEC C14 10A	IEC C20 16A
Output			
Voltage range	230VAC+/-2%		
Frequency (battery mode)	50Hz +/- 0.1Hz		
Power factor	0.9		
Current crest ratio	3:1		
THD	⩽3%(linear Load); ⩽5% (non-linear load)		
Waveform	Pure Sinewave		
Output sockets	2x AU 3 Pin sockets (1 critical / 1 non-critical)	3x AU 3 Pin sockets (2 critical / 1 non-critical)	3x AU 3 Pin sockets (2 critical / 1 non-critical)
Efficiency	⩾89% normal mode, up to 97% ECO mode		
Overload capacity	30s at 100-150%; 300ms at >150%		
Battery			
Type	Sealed lead acid, maintenance free		
Configuration (standard run)	3x 12V / 9Ah	6x 12V / 9Ah	6x 12V / 9Ah
Rated battery voltage	36V	72V	72V
Charge current (Max)	12A		
Recharge time to 90%	5 Hrs		
Charge mode	Intelligent 3-stage charging		
Comms & Management			
Software	Windows 95/98/NT/2000/XP/Vista/7, Windows Server 2003/2008 Linux Debian, Redhat, Fedora, Suse, Ubuntu, CentOS, Novell, Mac, FreeBSD		
Ports	USB and RS-232 standard		
Optional	SNMP & relay (trigger voltage free contacts)		
LED/LCD display	Load, battery, input, output, operating		
Audible alarm	Battery mode, low battery, overload, fault		
Protection			
Surge protection	2200 Joules / 60,000 Amps		
Input protection	Compliance with IEEE 587		
Short circuit	Resettable circuit breaker		
EPO	Shuts down UPS immediately		
EMC	EN50091-2, C Tick/RCM		
Network	RJ45, fulltime network protection		
Characteristics			
Temperature	0 - 40 °C		
Humidity	0 - 95% (non-condensing)		
Noise level	<50dB at 1m		
Dimensions (WxDxH) /weight	440x430x86.5 (2RU)/15.1kg	440x600x86.5mm (2RU)/26.3kg	440x600x86.5mm (2RU)/26.8kg
Shipping dimensions (WxDxH) / weight	560x560x210mm/17.9kg	560x730x210mm/29.6kg	560x730x210mm/29.9kg
EBM dimensions (WxDxH) / weight	440x430x86.5mm(2RU)/20kg	440x710x86.5mm(2RU)/33kg	440x710x86.5mm(2RU)/33kg
EBM shipping dimensions (WxDxH) / weight	560x560x210mm/24.1kg	560x840x210mm/42.6kg	560x840x210mm/42.6kg

Specifications are subject to change without prior notice

www.pssdistributors.com.au
Email: sales@pssdistributors.com.au
Phone: 1300 882 447