H SERIES 20KVA-30KVA

USER'S MANUAL

TABLE OF CONTENTS

1 IMPORTANT SAFETY INSTRUCTIONS

- This manual contains important instructions for the unit that should be followed during installation and maintenance of the UPS and batteries.
- Install the on-line UPS in a well ventilated area, away from flammable liquids and gases. Do not let the unit come in contact with water.
- External slits and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect from overheating these openings must not be blocked or covered. Objects must never be inserted into ventilation holes or openings.
- Do not stand beverage containers on the unit.
- This UPS was designed to power all modern computer loads and associated peripheral devices, such as monitors, modems, cartidge tape drives, external floppy drives etc.. Do not use it for pure inductive or capacitive loads. It is not rated to power life support equipment.
- All recorded media, such as diskettes, tapes and cartridges should be kept a minimum of 60cm from the UPS. Otherwise, the magnetic field created by operation of the UPS may erase data on those devices.
- All repairs or installation should be performed by qualfied service personnel. The UPS contains voltages which are potentially hazardous. The output receptacles may be alive even when the UPS is not connected to the mains.
- Rick of a possible electrocution is possible when battery is connected to the UPS. Therefore, do not forget to disconnect the batteries before any service is to be done on the UPS. To disconnect, remove the battery fuse its holder which is located at the rear panel of the battery cabinet.
- Isolate Uninterruptible Power Supply(UPS) before working on the circuit. A readily accessible disconnect device shall be incorporated in the fixed wiring.
- HIGH LEAKAGE CURRENT – Earth connection essential before connecting supply.
- ATTENTION, hazardous through electrical shock. Also with disconnection of this unit from the mains, hazardous voltage still may be accessible through supply from the battery(ies). The battery supply should therefore be disconnected in the plus and the minus pole when maintenance or service work inside the UPS is considered.
- Do not dispose of batteries in a fire, the battery may explode.
- Do not open or mutilate the battery or batteries, released electrolyte is harmful to the skin and eyes.

- A battery can present a risk of electric shock and chemical hazard. The following precaution should be observed when working on batteries.
  - * Remove watches, rings or other metal objects.
  - * Use only tools with insulated handles.

- The compliance with the following standards provides the conformity:

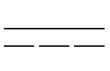
  - FCC PART 15 CLASS A
  - CE
  - CNS13438 CLASS A
  - IEC 61000-4-2 Level 4
  - IEC 61000-4-3 Level 3
  - IEC 61000-4-4 Level 4
  - IEC 61000-4-5 Level 4

WARNING

This is a class A-UPS product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take additional measures.

SYMBOL INTRODUCTION

PROTECTIVE GROUNDING TERMINAL: A TERMINAL WHICH MUST BE CONNECTED TO EARTH GROUND PRIOR TO MAKING ANY OTHER CONNECTION TO THE EQUIPMENT.



A TERMINAL TO WHICH OR FROM WHICH A DIRECT CURRENT OR VOLTAGE MAY BE APPLIED OR SUPPLIED.

THIS SYMBOL INDICATES THE WORD "PHASE".

2 INTRODUCTION

FUNCTIONS AND FEATURES

- True on-line design UPS WILL PERFORM WITHOUT ANY INTERRUPTION OF POWER TO YOUR SENSITIVE ELECTRONIC EQUIPMENT AT ALL TIMES.
- WIDE INPUT VOLTAGE REDUCE BATTERY DISCHARGES.
- AUTOMATIC INPUT FREQUENCY DETECTION ENABLE OPERATION AT 50Hz OR 60Hz.
- A POWER FACTOR CORRECTED INPUT AND A HIGH FREQUENCY PULSE WIDTH MODULATED INVERTER GIVES THE UPS EXCELLENT PERFORMANCE CHARACTERISTICS IN A COMPACT DESIGN.
- OPTIONAL ISOLATION TRANSFORMER: IT PROVIDES GALVANIC ISOLATION AND MULTIPLE OUTPUT VOLTAGE.
- BATTERY-START SWITCH ALLOWS UPS TO BE POWERED ON AND PROVIDES STABLE AC POWER WITH NO MAINS PRESENT.
- RS-232, AS-400 AND STATUS INTERFACES INCLUDED AS STANDARD FEATURE, ALLOWING COMMUNICATION WITH ALL TYPES OF COMPUTERS.
- THE SNMP INTERFACE CARD IS AN OPTIONAL ACCESSORY FOR THE PURPOSE OF NETWORK COMMUNICATION.
- UTILIZE STATE OF THE ART MICROPROCESSOR TECHNOLOGY FEATURING SELF DIAGNOSTICS AND LCD MESSAGE DISPLAY PROVIDING OPERATION AND STATUS INFORMATION.
- BY MEANS OF MANUAL AND STATIC BYPASS SWITCHES TO SWITCH TO AC MAINS.
- STATIC BYPASS SUPPLY INCORPORATES SURGE SUPPRESSION AND EMI FILTER.
- AUTOMATIC RESTART:
  1. THE UPS WILL START AGAIN ON INVERTER AUTOMATICALLY WHEN AC LINE RETURNS FOLLOWING A LOW BATTERY SHUT DOWN.
  2. AUTOMATIC RETURN FROM STATIC BYPASS AFTER OVERLOAD CONDITION IS CLEARED.
- ALARM CANCEL FACILITY TO SWITCH OFF THE AUDIBLE ALARM AND INDICATIVE LIGHTS STILL LIT IN THE EVENT OF LONG BACK -UP PERIODS.
- EXTERNAL BATTERY CABINET CAN BE USED TO EXTEND THE BACK-UP TIME.
- AUTO-DETECT THE BYPASS MODE VOLTAGE: THE PROTECTION RANGE IS +15%~ -20%. WHEN BYPASS VOLTAGE IS BEYOND PROTECTION RANGE, UPS WILL SUPPLY NO OUTPUT POWER TO THE LOAD.

THE CODING INFORMATION OF H SERIES UPS

GES □ □ □ **H** □ □ □ □ □ □

① ② ③ ④ ⑤ ⑥ ⑦

① Capacity

2	0	3	: 20KVA
3	0	3	: 30KVA

② Series

H	: H series

③ Input voltage

7	: 110/190V, 120/208V, 127/220V, 3Φ 4W

④ Output voltage

7	: 110/190V, 120/208V, 127/220V, 3Φ 4W

⑤

0	: Without transformer

⑥

0	: Standard type
2	: Long back-up time model

⑦ Packing

THE EXPLANATION OF THE FRONT CONTROL PANEL

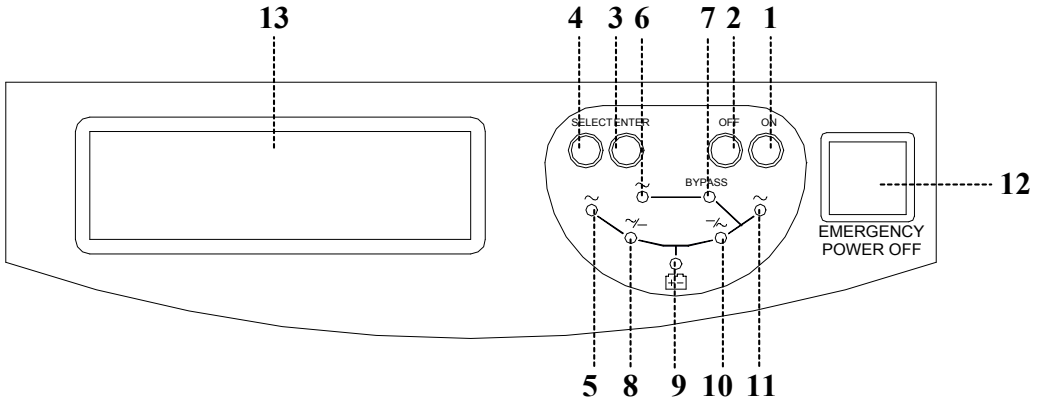
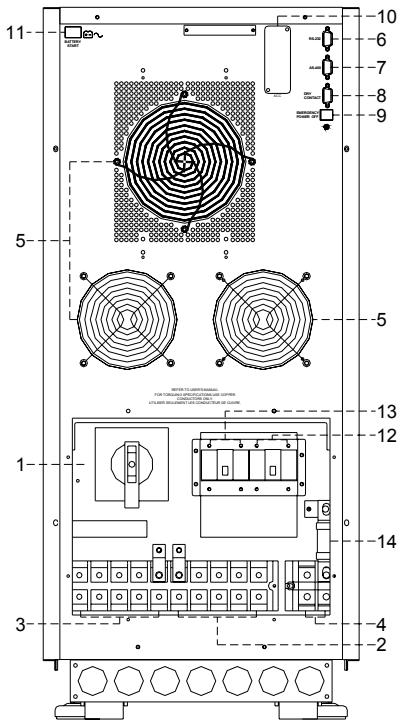


Fig. 1-1 FRONT CONTROL PANEL

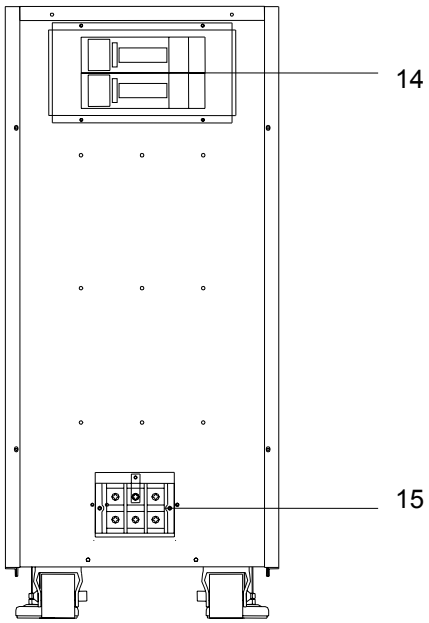
THE EXPLANATION OF THE FRONT CONTROLL PANEL

1. INVERTER ON SWITCH : START UP THE INVERTER.
2. INVERTER OFF SWITCH : TURN OFF THE INVERTER.
3. LANGUAGE SELECT AND OTHER FUNCTION SWITCH : SELECT LANGUAGES AND OTHER FUNCTION.
4. LCD FUNCTION SELECT AND ALARM CANCEL SWITCH : SELECTED DIFFERENT POWER READING ON LCD, OR PRESSING MORE THAN 3 SECONDS, IT WILL DISABLE “BEEP…” FROM BUZZER.
5. I/P1 LED INDICATES : INDICATES THE AC RECTIFIER SUPPLY IS PRESENT.
6. I/P2 LED : INDICATES THE AC BYPASS SUPPLY IS PRESENT.
7. BYPASS LED : WHEN LIT INDICATES THE LOAD IS OPERATING ON FILTERED AC BYPASS SUPPLY.
8. AC/DC LED : INDICATES THE AC/DC SECTION OF UPS IS OPERATING.
9. BATTERY LED : FLASHES TO INDICATE THAT UPS IS OPERATING IN THE BACK-UP MODE. DISCHARGING THE BATTERY.
10. DC/AC LED : INDICATES THE DC/AC INVERTER OF UPS IS OPERATING.
11. O/P LED : INDICATES UPS OUTPUT IS PRESENT.
12. EMERGENCY POWER OFF : UPS WILL BE POWERED OFF BY PUSHING THIS KEY AT LEAST ONE SECOND.
13. LCD DISPLAY : LCD (240 DOT * 64 DOT) DISPLAY. INDICATE THE OPERATING STATUS I/P & O/P VOLTAGE, BATTERY VOLTAGE ETC. WHEN STATUS HAS CHANGED, THE BACKLIT FUNCTION WILL WORK DURING ONE MINUTE.

THE EXPLANATION OF THE REAR CONTROL PANEL



20 / 30KVA



BATTERY CABINET

THE EXPLANATION OF THE REAR CONTROL PANEL

(1). MANUAL BYPASS SWITCH:

TO CHANGE POWER OF LOADING FROM STATIC BYPASS TO DIRECTIVE BYPASS, UNDER MAINTAINING UPS WITHOUT ANY INTERRUPTION OF POWER.

(2). INPUT TERMINALS:

TO CONNECT THE AC MAIN POWER INPUT.

(3). OUTPUT TERMINALS:

CONNECTION TERMINALS FOR THE LOAD TO BE SUPPORTED BY THE UPS.

(4). EXTERNAL BATTERY CABINET TERMINALS:

WHEN THE EXTENDED BACK-UP TIMES BEING REQUIRED AN EXTERNAL BATTERY CABINET MAY BE CONNECTED TO THE UPS VIA THESE TERMINALS.

(5). EXHAUST FANS:

FOR COOLING AIR VENTILATION OF UPS.

(6). TRUE RS-232 INTERFACE PORT:

FOR DETAILS, PLEASE REFER TO SECTION 6.

(7). AS-400 INTERFACE PORT:

FOR DETAILS, PLEASE REFER TO SECTION 6.

(8). DRY CONTACT INTEERFACE PORT:

FOR DETAILS, PLEASE REFER TO SECTION 6.

(9). REMOTE EMERGENCY POWER OFF:

FOR DETAILS, PLEASE REFER TO SECTION 6.

(10). SNMP CARD:

FOR DETAILS, PLEASE REFER TO SECTION 6.

(11). BATTERY START KEY:

ENABLES INVERTER TO BE SWITCHED ON WHEN THE AC INPUT SUPPLY IS NOT PRESENT.

(12). MAIN INPUT SWITCH:

SWITCH CONTROLS INPUT POWER TO THE UPS.

(13). BYPASS INPUT SWITCH:

SWITCH CONTROLS BYPASS POWER TO THE UPS.

(14). BATTERY FUSE:

FUSE FOR BATTERY PROTECTION.

(15). BATTERY CABINET DC O/P TERMINALS:

TO PROVIDE 240 VDC FOR UPS.

3 TECHNICAL DATA

MODEL	GES203H 3/3	GES303H 3/3
1. POWER		
1.1 POWER (VA)	20000VA	30000VA
1.2 POWER (W), PF=0.8	16000W	24000W
2. WAVE	SINEWAVE	
3. INPUT		
3.1 INPUT VOLTAGE	96V~144V/166V~250V 3Ø4W	
3.2 INPUT CURRENT (MAX.)	61A	91A
- INRUSH CURRENT	< 300A	
- POWER FACTOR	> 0.95 (FULL LOAD)	
3.3 EFFICIENCY (FULL RESISTANCE LOAD)		
- ON LINE MODE	89%	
3.4 INPUT FREQUENCY	50/60Hz±3Hz (AUTO-SELECTABLE)	
3.5 INPUT PROTECTION FUSE	200A (3PCS)	200A (3PCS)
3.6 BYPASS PROTECTION FUSE	200A (3PCS)	250A (3PCS)
4. OUTPUT		
4.1 OUTPUT VOLTAGE		
- RMS VOLTAGE **(NOTE)**	110/190V; 120/208V; 127/220V	
- STATIC REGULATION	± 2%	
4.2 TAKE ON TIME (FULL COMPUTER LOAD)	< 150 ms	
4.3 HARMONIC DISTORTION		
- WITHOUT ISOLATION TRANSFORMER	< 3% LINEAR LOAD,< 5% NONLINEAR LOAD	
4.4 OVERLOAD CAPABILITY		
- INVERTER MODE	≦ 102% CONTINUOUS	
	102%~125%: 1MIN	
	125%~150%: 30SEC	
	> 150%: 2SEC	
- BYPASS MODE	101A~125A: 1MIN	
	126A~150A: 30SEC	
	>150A: 3SEC	
4.5 SHORT CIRCUIT CAPABILITY	≧ 167A	≧ 250A
4.6 OUTPUT FREQUENCY	50/60Hz ± 0.1Hz (BACK-UP)	
4.7 OUTPUT PROTECTION CIRCUIT BREAKER		
4.8 CREST FACTOR	3:1	

MODEL	GES203H 3/3	GES303H 3/3
5. BATTERY & CHARGER		
5.1 TYPES	12V/26Ah or 12V/40Ah BATTERY	
5.2 NUMBER OF BATTERY	20 PCS	20PCS*2
5.3 PROTECTION	125A/ 660V FUSE	
5.4 RECHARGE VOLTAGE	268 VDC(FLOAT) /287 VDC (BOOST)	
5.5 RECHARGE CURRENT	5.2A (at 250VDC)	
5.6 TRICKLE CHARGING	ABOUT 30 mA	
5.7 LOW BATTERY SHUTDOWN	200VDC	
5.8 BACK-UP TIME	TABLE (一)	
6. OPERATION		
6.1 TRANSFER TIME		
- TRANSFER TO BACK-UP MODE	0ms	
- INVERTER TO BYPASS	< 1ms	
- BYPASS TO INVERTER	< 1ms	
6.2 AUDIBLE NOISE	< 65 dBA	
7. INDICATIONS		
7.1 LED STATUS MIMIC DIAGRAM	I/P1, I/P2, AC/DC, DC/AC, O/P, BATTERY, BYPASS	
7.2 LCD DISPLAY	REFER TO CHAPTER 5	
8. COMMUNICATIONS		
8.1 RS-232	REFER TO CHAPTER 6	
8.2 AS-400	REFER TO CHAPTER 6	
8.3 DRY CONTACT	REFER TO CHAPTER 6	
8.4 SNMP FUNTION	REFER TO CHAPTER 6	
8.5 REMOTE EMERGERCY POWER OFF	REFER TO CHAPTER 6	
9. CONNECTION		
9.1 INPUT TERMINAL BLOCK	100A	
9.2 OUTPUT TERMINAL BLOCK	100A	
9.3 EXTENDED BATTERY I/P TERMINAL LOCK	100A	
10. MANUAL BYPASS SWITCH FUNCTION	YES	

MODEL	GES203H 3/3	GES303H 3/3
11. OUTLOOK		
11.1 DIMENSION (UPS, BATTERY CABINET)		
- DEPTH (D)	650mm/ 26.5inches	
- WIDTH (W)	380mm/ 15.5inches	
- HIGH (H)	860mm/ 35.1inches	
11.2 NET WEIGHT		
- UPS CABINET	111Kg/ 245lbs	118Kg/ 260lbs
- BATTERY CABINET	270Kg/ 595lbs (12V/26AH*20); 370Kg/ 816lbs (12V/40AH*20)	
12 ENVIRONMENT		
12.1 AMBINET OPERATING TEMPERATURE	0°C~40°C/ 32°F~104°F	
12.2 AMBIENT STORAGE TEMPERATURE	-20°C~40°C/ -36°F~104°F	
12.3 RELATIVE HUMIDITY	5%~95%	
12.4 OPERATING ELEVATION	0~3300m (0~10000ft)	
13 STANDARDS		
13.1 FCC PART 15 CLASS A	YES	
13.2 CE	YES	
13.3 CNS13438 CLASS A	YES	
13.4 IEC 61000-4-2 LEVEL 4	YES	
13.5 IEC 61000-4-3LEVEL 3	YES	
13.6 IEC 61000-4-4LEVEL 4	YES	
13.7 IEC 61000-4-5LEVEL 4	YES	

NOTE: THE OUTPUT VOLTAGE CAN BE SET BY THE UPS INTERIOR OF SOFTWARE THROUGH RS-232.

EXTENDED RUNTIME TABLE BY BATTERY QUANTITY

UPS TYPE	Power Factor	BATTERY TYPE AND QUANTITY (CSB)	BACK-UP TIME
20KVA	0.7	12V/26AH*20PCE*1SET	10min
	0.8		7min
	0.7	12V/40AH*20PCE*1SET	20min
	0.8		15min
	0.7	12V/26AH*20PCE*2SETS	30min
	0.8		25min
	0.7	12V/40AH*20PCE*2SETS	50min
	0.8		40min
	0.7	12V/40AH*20PCE*3SETS	80min
	0.8		70min
	0.7	12V/40AH*20PCE*4SETS	120min
	0.8		110min
30KVA	0.7	12V/26AH*20PCE*2SETS	15min
	0.8		13min
	0.7	12V/40AH*20PCE*2SETS	25min
	0.8		23min
	0.7	12V/40AH*20PCE*3SETS	50min
	0.8		40min
	0.7	12V/40AH*20PCE*4SETS	70min
	0.8		60min

4 INSTALLATION

DELIVERY

Check condition of equipment on delivery. Contact the supplier and carrier immediately if the packaging or unit is damaged.

INITIAL INSPECTION

Unpack the UPS carefully, notice the packing method, and retain the box and packing material. (If you must return the UPS at any time, repack it how it was originally shipped.) Visually inspect the UPS for damage which may have occurred during shipment. If there is damage or anything is missing, contact the dealer from whom you purchased the unit, and save the packaging for future shipment.

STORAGE AND BATTERY MAINTENANCE

- If the UPS is to be stored prior to intallation, it should be placed in a dry and well-ventilated area.
- Extreme storage temperatures:
  - 20℃ to +60℃ without battery.
  - 20℃ to +45℃ with battery for a short period.
- The best ambient temperature for battery is 15~25 ℃. When the temperature is over 25℃, the life of battery will be shorten to half for 10 ℃ higher. Under normal condition, the life of battery is about 5 years.
- Eight hours charging time is needed when the UPS is charged for the first time.
- If after 8 hours of recharge, the battery charge remains low, then contact an anthorized dealer to replace the batteries.
- If the UPS is to remain off for a long period, it is recommended that the power should be switched on for a period of 24 hour, approximately every 3 months to recharge the battery and prevent irreversible battery damage.
- When replacing the batteries, use the same number and the following type of batteries:

  12V/40A*20PCS/1SET, CSB(GP12400) or YUASA(NP38-12)

  12V/26A*20PCS/1SET, CSB(GP12260) or YUASA(NP26-12B)

HANDLING

- This a class A UPS product. In places where a high EMC protection is required we suggest to use a separate transformer for the UPS.
- The UPS should always have a clearance space of 50cm/19.7inch at the rear. Refer to Fig.4-1.
- The unit is fitted with wheels for moving it over a short distance. It is stabilized by four feet at both side.
- For safety reason, please secure the unit by releasing the feet. Refer to Fig.4-2.

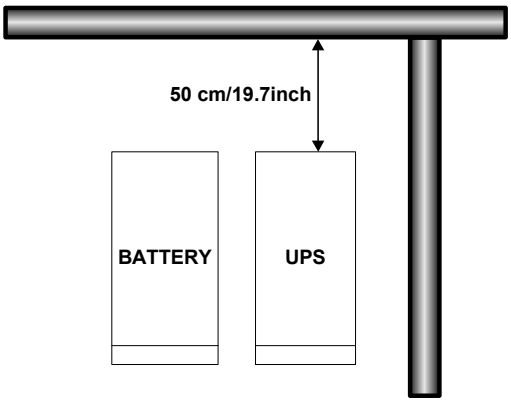


Fig. 4-1Ventilation (Top view)

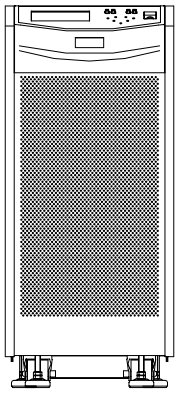


Fig. 4-2 Handing (Front view)

SELECTION OF CABLES AND INPUT, OUTPUT CONNECTION:

- The choice for external wires: Please select the wires had recognized by Safety agency. May be constructed of materials rated VW-1 or FT-1 or batter.
- Table for external wiring size:

Capacity	Input & Ground wiring size	Output wiring size	Battery Cabinet Wiring size
20KVA 3/3	3AWG	3AWG	4AWG
30KVA 3/3	2AWG	2AWG	2AWG

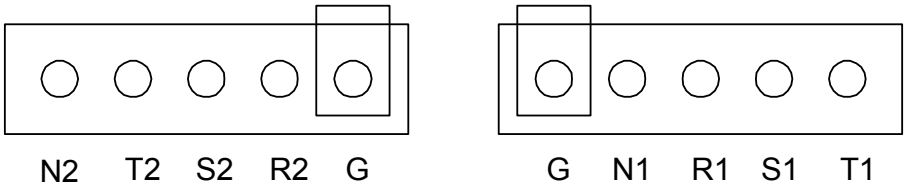
- ✓ Maximum length of the cable to the battery 10m.
- ✓ Maximum length of the interface-cable as RS-232, AS400 etc.3 m.
- ✓ Maximum length of the output cable 10 m.
- ✓ In situations the length of the cables exceeds the above limitation, please ask your nearest Service Center.
- ✓ If the output for battery terminal of UPS to external battery cabinet is a serial, then you can use the wiring size of battery smaller than normal.
- ✓ Please connect the grounding wire between battery's cabinet and input/output terminal.
- ✓ In accordance with National Electrical Code, please install all the wiring suitable conduit and bushing.
  - Conduit: Flexible metal conduit of diameter is one inch.
  - Bushing: Overall diameter is 40.5mm, height is 13.1mm.
- ✓ When connecting the cable, please notice that:

1. Before connecting, turn off the UPS and cut off not only the AC source but also the battery.
2. Ensure the cable is fitted. The minimum tightening torque shall not be less than 35 lbs lb-in.
3. There are two knockouts on the wiring cover. If only one of them is used, please be sure that covered the other one to prevent hazardous accessibility.

THE EXPLAIN ABOUT THE TERMINAL HOW TO CONNECT:

NOTE : INPUT POWER SOURCE MUST BE CONNECTED TO 3Ø4W SYSTEM WITH NEUTRAL WIRE.

- Triple phase four wires output / Triple phase four wires input



Output Power
Triple phase four wires

Main Input Power
Triple phase four wires

* Bypass input power wires (W4, W5, W6) are connected with main input power wires (W1, W2, W3) in factory.

- If you want to change the UPS to the HOT STANDBY mode, please contact qualified distributor to connect bypass power to second power source. Please check the neutral of the second source is the same with main input power. If they are different, please add an isolation transformer to the second source.

INITIAL SETUP

The voltage and frequency of UPS have been regulated and set well by professional people in factory. If you want to change any reference of UPS, please contact qualified distributor to modify the reference by using Interior software through RS-232.

5 OPERATION

BYPASS MODE

UPS is used on bypass mode only.

- Turn on the bypass breaker and UPS is on bypass mode without charging and operating.
- The Power of by bypass is through static switch to output terminal.
- If UPS need to start up or charger, it must connect the battery cabinet DC output to UPS battery terminal. Put the fuse of battery cabinet well; turn on the rectifier and bypass breakers. UPS is operating normally on bypass mode and charging.
- If the bypass voltage is over the range +15%~-20%, the UPS will cut off the output power to protect the equipment.

INVERTER ON/OFF

INVERTER ON:

- If you don't have a Battery supply, you can't start-up the UPS.
- When the AC input is normal, press the inverter switch "ON" key.
- When the AC input is failure, press both the "battery start switch" and the "inverter on switch" together for more than 3 seconds to turn on inverter.
- The UPS starts to self-test and shows the results on the back lit LCD display, as show below.
- After self-testing, the load is supplied by inverter.

INVERTER OFF:

Press the inverter switch"OFF" key to disable inverter:

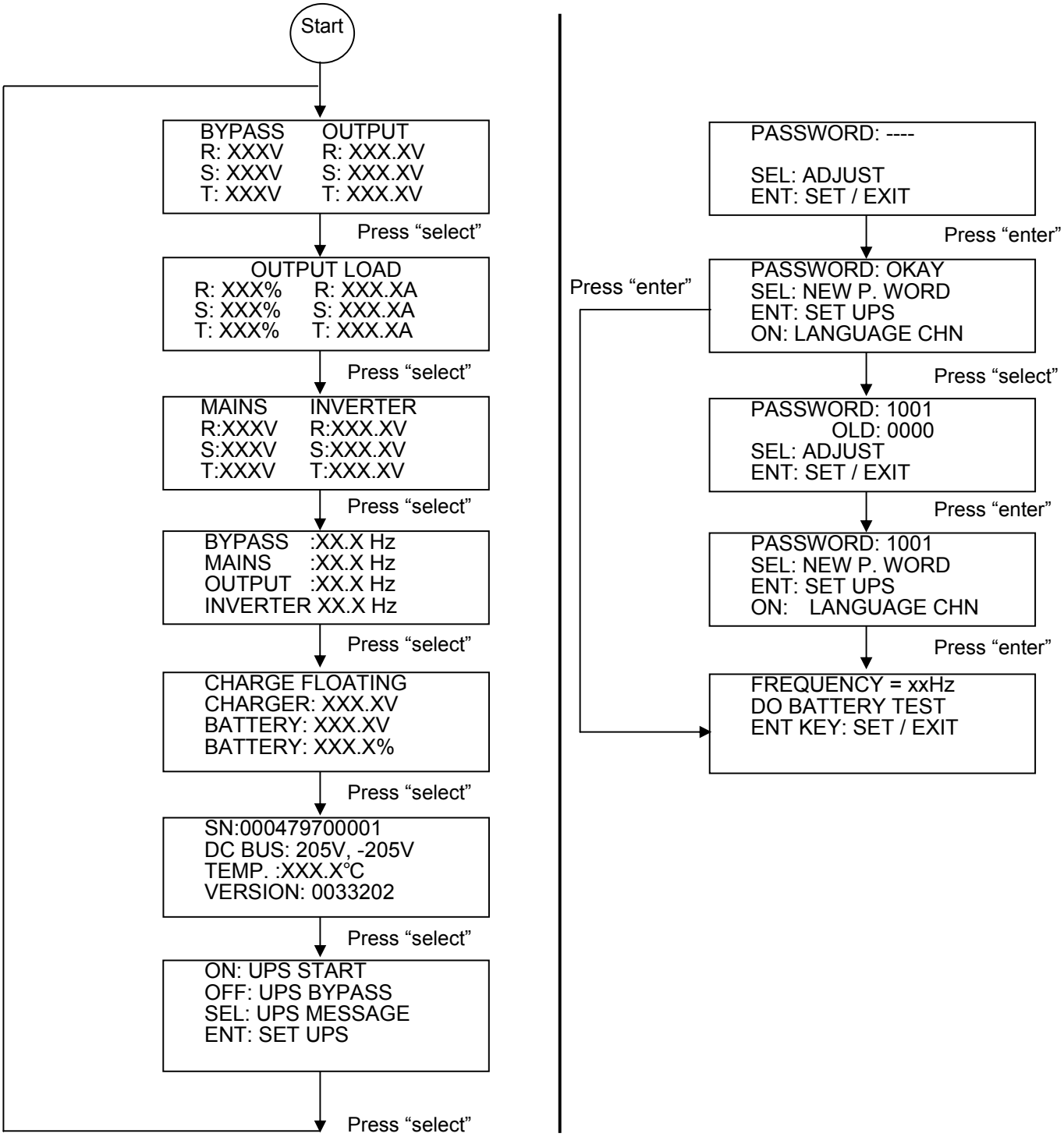
- If AC input power exists, UPS will transfer to BYPASS MODE.
- Otherwise, LCD display will show "UPS OFF WAITING" about 10 seconds to make sure that UPS is ready to shut down. Then UPS will power off, no LCD display.
- After no LCD display, you can remote the fuse of the battery cabinet.

LCD FUNCTION SELECT SWITCH

Press the select key on front panel once to show different power reading on LCD.

* The status of UPS flashes to the first line.

* Password & Setup manual



OPERATION ON BYPASS VOLTAGE BEYOND ALLOWABLE RANGE

The UPS can auto-detect the bypass mode voltage. The protection range is +15%~-20%. When bypass voltage is beyond protection range, UPS will no output power to the load. The message in fig.4-1 will be shown on the LCD.

BYPASS HI NO O/P	Bypass voltage is too high, UPS supplies no output power to the load.
BYPASS LO NO O/P	Bypass voltage is too low, UPS supplies no output power to the load.
BYPASS WAS HI	Bypass voltage had been once too high, UPS supplies no output power to the load. Now UPS turns to normal.
BYPASS WAS LO	Bypass voltage had been once too low, UPS supplies no output power to the load. Now UPS turns to normal.

WARNING AND SHUTDOWN:

(1) System Warning

System statue	LCD display	Handle measure
Output overload XXX%	OVERLOAD XXX%	Please reduce the output loading to rated loading
Battery voltage is low	BATTERY LOW	The battery voltage is low, the UPS will transfer to bypass mode.
Charger fail	CHARGER FAILURE	Please contact qualified distributor for technical service
Frequency error	FREQUENCY ERROR	Please check that the frequency of the bypass input is during the rated frequency ±3Hz
Phase lock error	PHASE ABNORMAL!	Please check that the sequence of the input is correct
Rectifier or PFC circuit fail	AC/DC FAIL!	Please contact qualified distributor for technical service.

(2) System Shutdown

System statue	LCD display	Handle measure
Output overload XXX% Shutdown	OVERLOAD XXX% SHUTDOWN….	Please reduce the output loading to 75% rated loading, the inverter would restart automatically.
Output short circuit Shutdown	SHORT CIRCUIT! SHUTDOWN….	Please check that if the output is short, and eliminate the short equipment and restart the UPS.
Battery voltage is too low Shutdown	LOW BATTERY! SHUTDOWN….	The battery voltage is under the shut down voltage. When main input recover, the inverter would restart automatically.
Remote Shutdown	REMOTE SHUTDOWN SHUTDOWN….	This order can be commanded through dry contact or RS-232.
Emergency Shutdown	EMERGENCY STOP! SHUTDOWN….	Please refer to the explanation of the front/rear control panel.
Temperature is too high Shutdown	HIGH TEMP! SHUTDOWN….	Please check that if the ambient temperature is too high or the fans of the UPS operate normally.

(3) System Fail

System statue	LCD display	Handle measure
Inverter output voltage is failure	R OUTPUT FAIL! SHUTDOWN….	Please contact qualified distributor for technical service.
DC BUS voltage is failure	DC BUS FAIL! SHUTDOWN….	

DC BUS voltage is over protective voltage	DC BUS O.V.P.! SHUTDOWN….	

VERIFYING THE BATTERY CONDITION

The statuses of battery are as shown below:

Battery Condition	Buzzer of Back-up Status	LCD display
FULL	BEEP/ 2sec	ON BATTERY BATT=XXX*V XXX%*
MID		
LOW	BEEP/ 0.5sec	BATTERY LOW BATT=*XXXV XXX%*
UNDER	LONG BEEP	BATTERY UNDER! SHUT DOWN…

OPERATION OF MANUAL BYPASS SWITCH

The manual bypass switch is used for maintenance. In this situation, AC input power is directly supplied to the load.

CAUTION
ACTIVATE MANUAL BYPASS SWITCH ONLY WHEN UPS IS IN BYPASS MODE

NORMAL → BYPASS

- ✓ STEP1: Turn off the inverter power switch. To transfer UPS to bypass mode.
- ✓ STEP2: Turn the switch from 【NORMAL】to 【BYPASS】.
- ✓ STER3: Turn off the AC I/P breaker.
- ✓ STER4: Remove the BATT. Fuse.

BYPASS → NORMAL

- ✓ STEP1: Insert the fuse into the battery fuse holder, and close the latch bar.
- ✓ STEP2: Turn on the AC I/P breaker.
- ✓ STEP3: Turn the switch from【BYPASS】back to 【NORMAL】.
- ✓ STEP4: Turn on the inverter power switch.

6 COMMUNICATION INTERFACE

RS-232 INTERFACE

A 9-pin female SUB-D connector is provided on the UPS's rear panel to provide signals of the UPS to the computer. Using the software product, the user can check the power status. The detail signals are as follows:

- Load level
- Battery status
- Battery level
- UPS mode
- Input voltage
- Output voltage
- Input frequency
- Temperature inside unit
- Set shutdown delay time
- Enable / Disable beeper
- Remote shutdown

Pin assignment:

- Pin 2: TXD (Transmit Data)
- Pin 3: RXD (Receiving Data)
- Pin 5: GND (Signal Ground)

Hardware:

- Baud Rate ----------2400 bps
- Data Length ---------- 8 bits
- Stop Bit ---------- 1 bit
- Parity ---------- NONE

※ **Contact your local dealer for more information about the optional software product.**

AS-400 INTERFACE

A 9-Pin female SUB-D connector is provided on the UPS's real panel to provide the following signals to IBM AS-400 computer.

- Operation on normal
- Operation on battery
- Operation on bypass
- Low battery prealarm

****AS-400 INTERFACE TABLE = INACTIVE: STATE MAY BE "ON"OR"OFF" CONDITION.**

STATE / PIN	PIN 6, 5	PIN 7, 5	PIN8, 5	PIN 9, 5
BATTREY	OFF		ON	ON
LOW BATTERY	OFF	ON	ON	ON
BYPASS	ON	OFF	OFF	OFF
NOMORAL	OFF		ON	

DRY CONTACT

The sub-D communication port (9-pin female type) is used to power on/off the UPS by external control signal. UPS also can transfer its status through this port.

****DRY CONTACT TABLE = INACTIVE: STATE MAY BE "OPEN"OR" CLOSE" CONDITION.**

STATE / PIN	PIN 8, 3	PIN 1,3
NORMAL	OPEN	OPEN
BACK UP	CLOSE	
LOW BATTERY	CLOSE	CLOSE

Pin assignment:

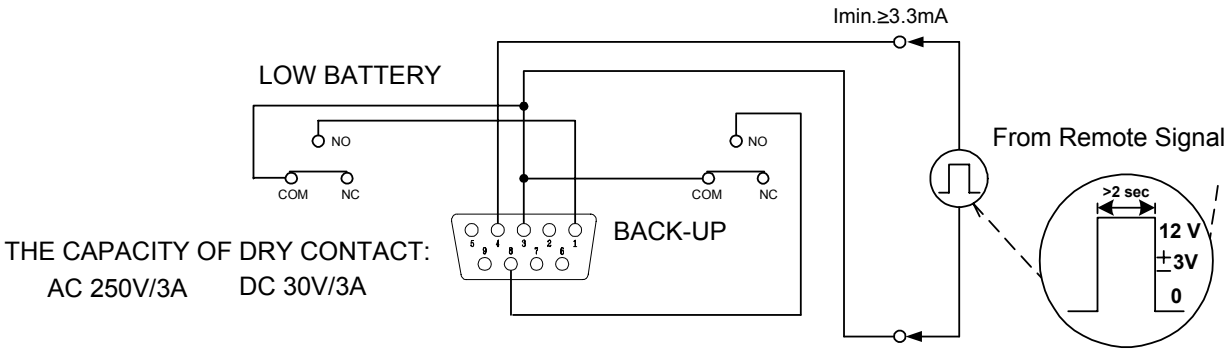
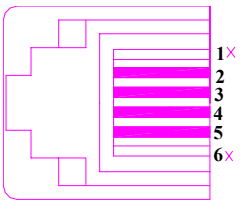
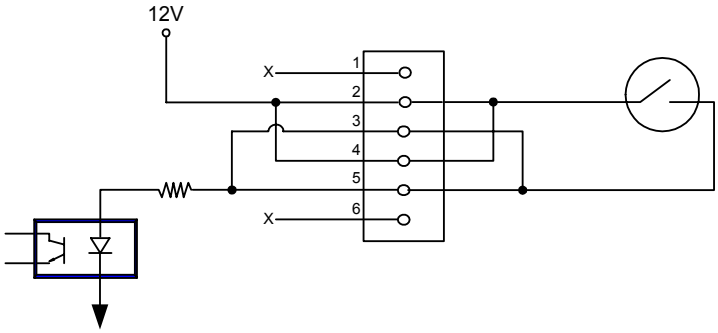


Fig. 5-2

REMOTE EMERGENCY POWER OFF

Pin assignment of RJ-11:
If short pin (2, 3) or pin(2, 5) or pin(4, 5) or pin(4, 3), then the UPS will be powered off.

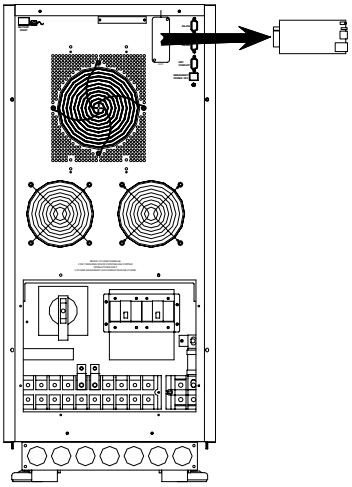




NOTE: This port must not intend to connect to the Telecom. Port.

SNMP CARD

SNMP network interface is a powerful tool to make you remotely control and monitor UPS.



※ **Contact your local dealer for more information about the optional SNMP CARD**

P/N: 5011341100