

**ON LINE
N-Series**

U ninterruptible
SP ower
S upply

6~10KVA

User's Manual

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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, cartridge 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 qualified 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.
- Risk 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 UPS.
- 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.
- Federal Communications Commission Interference Statement
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
FCC Caution: To assure continued compliance, (example-use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- 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.

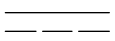
- * Remove watches, rings or other metal objects.
- * Use only tools with insulated handles.

- The compliance with the following standards provides the conformity:
- UL 1778
- CSA 22.2-107
- FCC CLASS A
- EN 50091-1-1
- EN 50091-2 CLASS A
- IEC 1000-2-2
- IEC 1000-4-2
- IEC 1000-4-3
- IEC 1000-4-4
- IEC 1000-4-5
- CNS 13438 CLASS A

SYMBOL



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

Ω 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 enables 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.
- Remote emergency power off (EPO): When activated EPO, UPS output will be powered off. The UPS into a safe shutdown condition.
- 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.
- Optional “ECONOMY MODE”: when input voltage is within the range of rating voltage $\pm 10\%$, UPS is working in the bypass mode for more efficiency. Otherwise ups will transfer into inverter mode.
- Auto-detect the bypass mode voltage: the protection range is $+15\% \sim - 20\%$. When bypass voltage is beyond protection range, UPS will supply no output power to the load.

Ω THE CODING INFORMATION OF N SERIES UPS

GES **N**

1
2
3
4
5
6
7

- ① **Capacity**
- | | | | |
|----------|----------|----------|--------|
| 6 | 0 | 2 | : 6KVA |
| 8 | 0 | 2 | : 8KVA |
| 1 | 0 | 3 | :10KVA |
- ② **Series**
- | | |
|----------|------------|
| N | : N Series |
|----------|------------|
- ③ **Input voltage**
- | | |
|----------|------------------|
| 1 | : 100V,110V,120V |
|----------|------------------|
- Output voltage**
- | | |
|----------|--|
| 2 | : 200V,208V,220V,230V,240V |
| 3 | : 220/230/240V, ϕ 4W |
| 4 | : 100/200V or 110/220V or 115/230V or 120/208/240V multiple output ϕ 3W |
| 6 | : 120/208/240V, ϕ 4W multiple output |
- ⑤
- | | |
|----------|---------------------------------|
| 0 | : without isolation transformer |
| 1 | : with isolation transformer |
- ⑥
- | | |
|----------|--|
| 0 | : standard type |
| 2 | : long back-up time model with long back-up time charger |
- ⑦ **Packing**

Ω THE EXPLANATION OF THE FRONT CONTROL PANEL

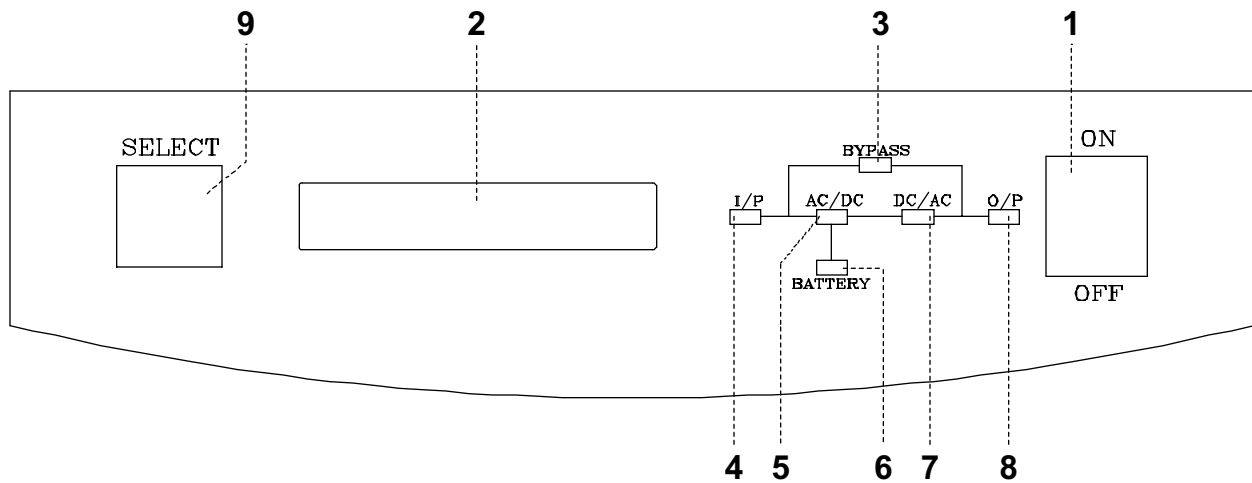


Fig. 1-1 FRONT CONTROL PANEL

1. INVERTER ON/OFF SWITCH

↳ START UP OR TURN-OFF THE INVERTER.

2. BACKLIT LCD DOT MATRIX DISPLAY

↳ 16 X 2 CHARACTER DISPLAY. INDICATE THE OPERATING STATUS I/P&O/P VOLTAGE, BATTERY VOLTAGE ETC.

3. BYPASS LED

↳ WHEN LIT INDICATES THE LOAD IS OPERATING ON FILTERED AC MAINS SUPPLY.

4. I/P LED

↳ INDICATES AN AC INPUT SUPPLY IS PRESENT.

5. AC/DC LED

↳ INDICATES THE AC/DC SECTION OF UPS IS OPERATING.

6. BATTERY LED

↳ FLASHES TO INDICATE THAT UPS IS OPERATING IN THE BACK-UP MODE I.E. DISCHARGING THE INTERNAL BATTERY.

7. DC/AC INVERTER LED

↳ INDICATES THE DC/AC INVERTER OF THE UPS IS OPERATING.

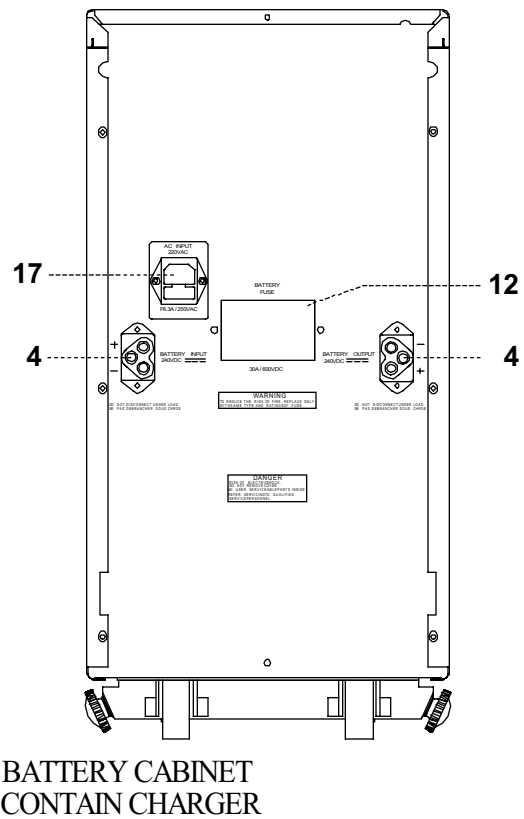
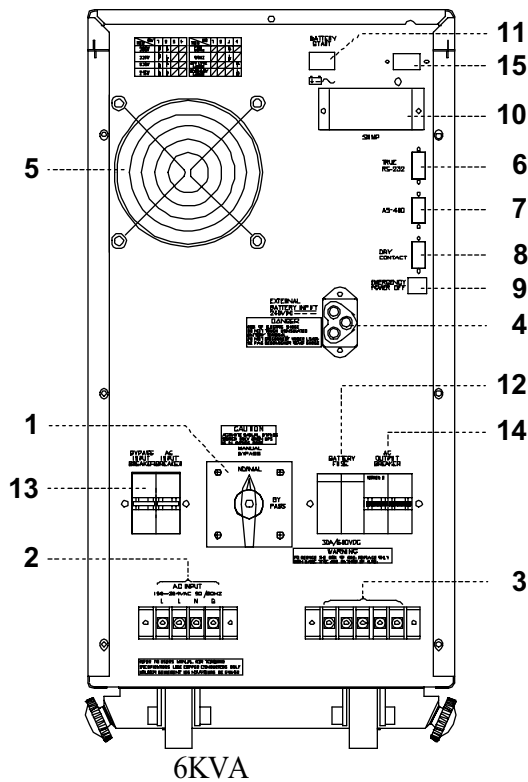
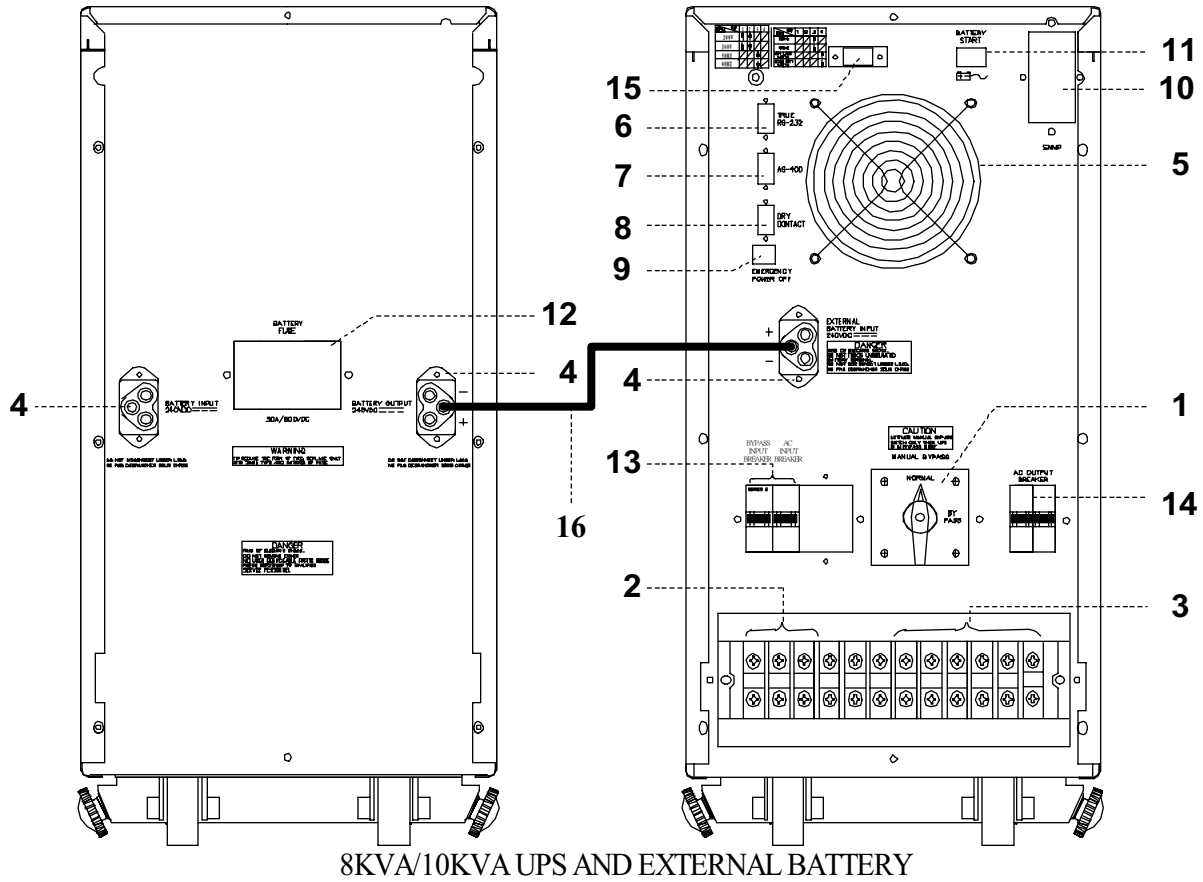
8. O/P LED

↳ INDICATES UPS OUTPUT IS PRESENT.

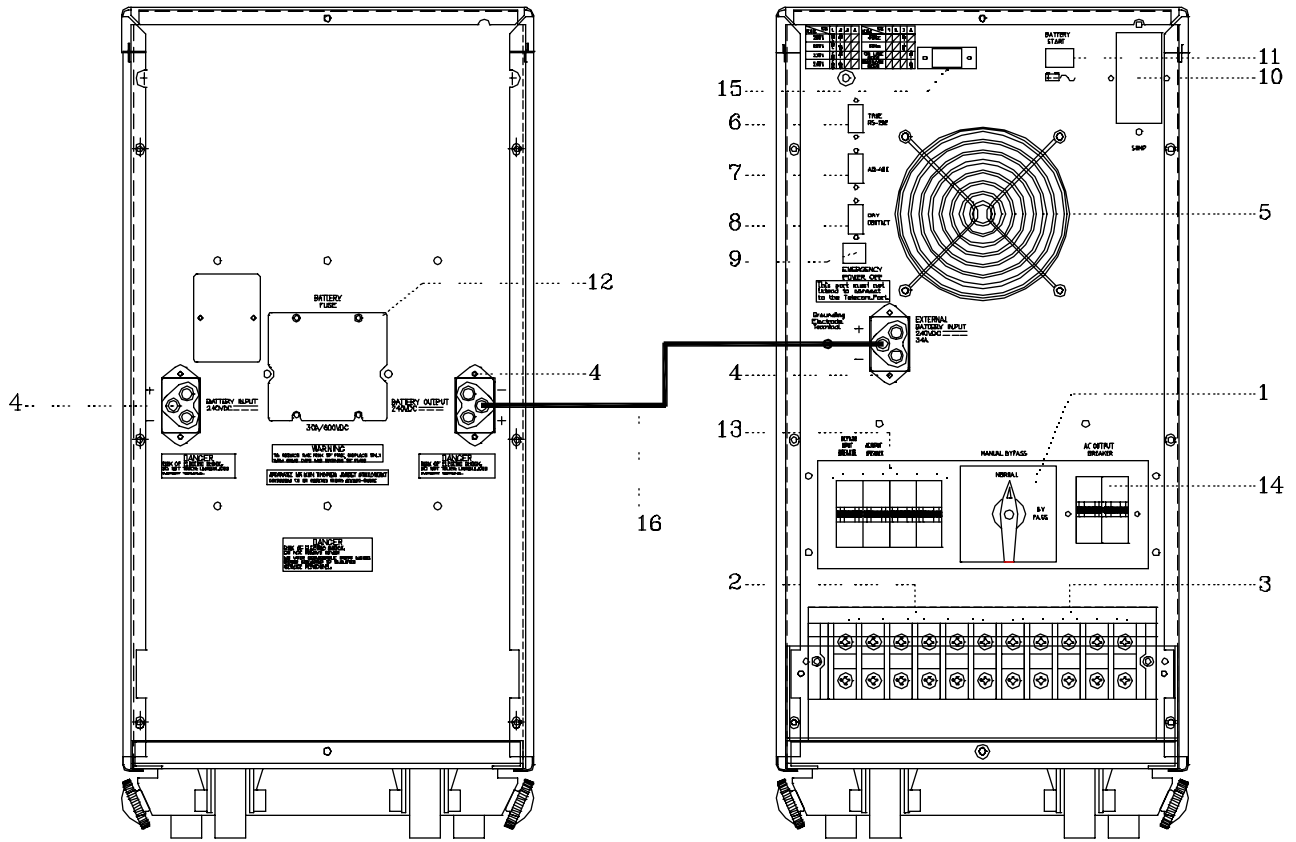
9. LCD FUNCTION SELECT AND ALARM CANCEL SWITCH

↳ SELECTED DIFFERENT POWER READING ON LCD, OR PRESSING MORE THAN 3 SECOND, IT WILL DISABLE “BEEP...” FROM BUZZER.

Ω THE EXPLANATION OF THE REAR CONTROL PANEL



Ω THE EXPLANATION OF THE REAR CONTROL PANEL



8KVA/10KVA (Three phase input / single phase output) UPS AND EXTERNAL BATTERY

Ω 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 CONNECTOR:**
 - ↳ WHEN THE EXTENDED BACK-UP TIMES BEING REQUIRED AN EXTERNAL BATTERY CABINET MAY BE CONNECTED TO THE UPS VIA THIS CONNECTOR.
- (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). BATTERY FUSE:**
 - ↳ 30A/600V FUSE FOR BATTERY PROTECTION.
- (13). AC INPUT AND BYPASS INPUT BREAKERS:**
 - ↳ BREAKERS CONTROL INPUT POWER TO THE UPS.
- (14). OUTPUT BREAKER:**
 - ↳ BREAKER CONTROLS OUTPUT PROTECTION. (THE BREAKER IS OPTIONAL, BECAUSE UPS WITH ELECTRIC PROTECTION).
- (15). OPERATE MODE SELECT:**
 - ↳ FOR DETAILS, PLEASE REFER TO SECTION 5.
- (16). UPS & BATTERY CABINET CONNECT CABLE:**
 - ↳ CONNECT UPS AND EXTERNAL BATTERY CABINET.ALSO FOR THE CONNECTIION BETWEEN BATTERY CABINET IF NECESSARY.
- (17). BATTERY CABINET AC I/P SCOKET:**
 - ↳ TO CONNECT THE EXTERNAL BATTERY CABINET INTERNAL CHARGER POWER INPUT.

3. TECHNICAL DATA

MODEL	6KVA	8KVA	10KVA	10KVA
1. POWER				
1.1 POWER (VA)	6000VA	8000VA	10000VA	
1.2 POWER (W), PF=0.8	4800W	6400W	8000W	
2. WAVE	SINEWAVE			
3. INPUT				
3.1 INPUT VOLTAGE	156V~280V SINGLE PHASE			270~485V 3Ø4W
3.2 INPUT CURRENT	30A	40A	50A	15A
- INRUSH CURRENT	< 150A	< 200A		
- POWER FACTOR	> 0.99 (FULL LOAD)			>0.95(FULL LOAD)
3.3 EFFICIENCY (FULL RESISTANCE LOAD)				
* WITHOUT ISOLATION TRANSFORMER				
- ON LINE MODE	90%	90%		
- ECONOMY MODE	96%	96%		
* ISOLATION TRANSFORMER INCLUDED				
- ON LINE MODE	86%	86%		
- ECONOMY MODE	93%	93%		
3.4 INPUT FREQUENCY	50/60Hz±3Hz (AUTO-SELECTABLE)			
3.5 INPUT PROTECTION CIRCUIT BREAKER	40A	50A	63A	32A
4. OUTPUT				
4.1 OUTPUT VOLTAGE				
- RMS VOLTAGE	200/ 208/ 220/230/240V(NOTE1)			
- STATIC REGULATION	± 2%			
4.2 TAKE ON TIME (FULL COMPUTER LOAD)	< 150 ms			
4.3 HARMONIC DISTORTION				
- WITHOUT ISOLATION TEANSFORMER	< 3% NONLINEAR LOAD			
- ISOLATION TRANSFORMER INCLUDED	< 3% LINEAR LOAD, <6% NONLINEAR LOAD			
4.4 OVERLOAD CAPABILITY	≤ 102% CONTINUOUS			
	102%~125%: 1MIN			
	125%~150%: 30SEC			
	> 150%: 2SEC			
4.5 SHORT CIRCUIT CAPABILITY	≥ 90A	≥ 130A	≥ 160A	
4.6 OUTPUT FREQUENCY	50/60Hz ± 0.1Hz (BACK-UP)			

MODEL	6KVA	8KVA	10KVA	10KVA
4.7 OUTPUT PROTECTION CIRCUIT BREAKER (NOTE 2)	32A	50A	63A	
4.8 CREST FACTOR	3:1			
5. BATTERY & CHARGER				
5.1 TYPES	12V/7Ah BATTERY			
5.2 NUMBER OF BATTERY	20 PCS	20 PCS * 2 SETS		
5.3 PROTECTION	30A/600V FUSE			
5.4 RECHARGE VOLTAGE	274 VDC			
5.5 RECHARGE TIME	8Hrs 90%			
5.6 TRICKLE CHARGING	ABOUT 30 mA			
5.7 LOW BATTERY SHUTDOWN	200VDC			
5.8 BACK-UP TIME (PF: 0.7)	≥ 8MIN	≥ 15MIN	≥ 10MIN	
6. OPERATION				
6.1 TRANSFER TIME				
- Transfer to back-up mode	0ms			
- ON-LINE MODE				
- INVERTER TO BYPASS	< 1ms			
- BYPASS TO INVERTER	< 1ms			
- ECONOMY MODE				
- INVERTER TO BYPASS	< 1ms			
- BYPASS TO INVERTER	< 1ms			
- BYPASS TO BACK-UP	<8ms			
6.2 AUDIBLE NOISE	< 50 dBA	< 55 dBA		
7. INDICATIONS				
7.1 LED STATUS MIMIC DIAGRAM	I/P, 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 EMERGENCY POWER OFF	REFER TO CHAPTER 6			
9. CONNECTION				
9.1 INPUT TERMINAL BLOCK	40A	60A		
9.2 OUTPUT TERMINAL BLOCK	40A	60A		
9.3 EXTENDED BATTERY I/P SOCKET	40A			

10. MANUAL BYPASS SWITCH FUNCTION	YES			
MODEL	6KVA	8KVA	10KVA	10KVA
11. OUTLOOK				
11.1 DIMENSION (UPS, BATTERY CABINET)				
- DEPTH (D)	630mm/24.8inches			
- WIDTH (w)	280mm/11inches			
- HIGH (H)	565mm/22.3inches			
11.2 NET WEIGHT INCLUDED				
- UPS WITHOUT TRANSFORMER	80Kg/176lbs	44Kg/97lbs		
- UPS WITH TRANSFORMER	130Kg/286lbs	100Kg/220lbs		
- BATTERY CABINET		126Kg/278lbs		
12 EMVIRONMENT				
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%			
13 STANDARDS				
13.1 UL 1778	YES			
13.2 CSA 22.2-107	YES			
13.3 FCC CLASS A	YES			
13.4 EN50091-1-1	YES			
13.5 EN 50091-2 CLASS A	YES			
13.6 IEC 1000-2-2				
13.7 IEC 1000-4-2 LEVEL 3	YES			
13.8 IEC 1000-4-3 LEVEL 3	YES			
13.9 IEC 1000-4-4 LEVEL 4	YES			
13.10 IEC 1000-4-5 LEVEL 4	YES			
13.11 LNS 13438 class A	YES			

NOTE 1: DEPEND ON THE TYPE OF ISOLATION TRANSFLRMER, THE OUTPUT VOLTAGE COULD BE 100, 110,115, 120V

1● 2W OR 200, 220, 230, 240V 1● 2W OR 100/200, 110/220, 115/230, 120/240 1● 3W OR 120V/208V/240V1● 4W.

NOTE 2: THE OUTPUT BREAKER MUST DEPEND ON MULTIPLE OUTPUT VOLTAGE, EXAMPLE 100/200, 110/220,

115/230, 120/240, 1● 3W OR 120/208/240V 1● 4W.

4. INSTALLATION

Ω DELIVERY

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

Ω 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.

Ω STORAGE AND BATTERY MAINTENANCE

- If the UPS is to be stored prior to installation, it should be placed in a dry and well-ventilated area.
- Extreme storage temperatures:
 - 20°C to +60°C without battery.
 - 20°C to +45°C with battery for a short period.
- The best ambient temperature for battery is 15~25°C. When the temperature is over 25°C, the life of battery will be shortened to half for 10°C 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 authorized 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 hours, 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:
 - 6KVA:12V/7Ah*20/1SET, YUASA(NP7-12) or CSB(GP1272F2)
 - 8, 10KVA:12V/7Ah*20/2SETS, YUASA(NP7-12) or CSB(GP1272F2)

Ω HANDLING

- The UPS should always have a clearance space of 300mm at the rear and 100mm on its side. Refer to Fig.3-1.
- 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.3-2.

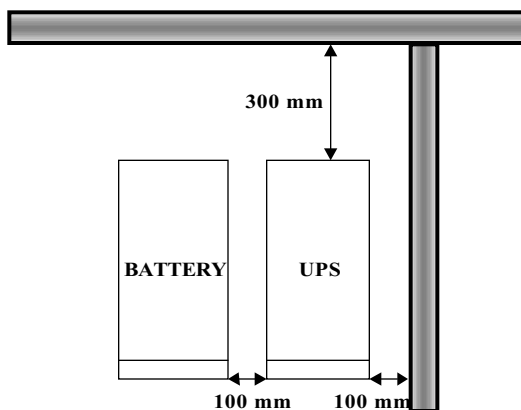


Fig. 3-1 VENTILATION (TOP VIEW)

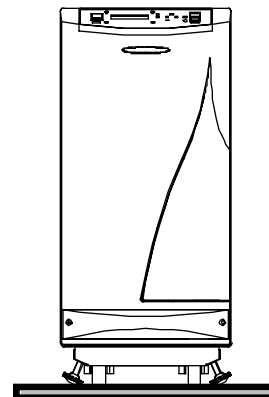


Fig. 3-2 HANDLING (FRONT VIEW)

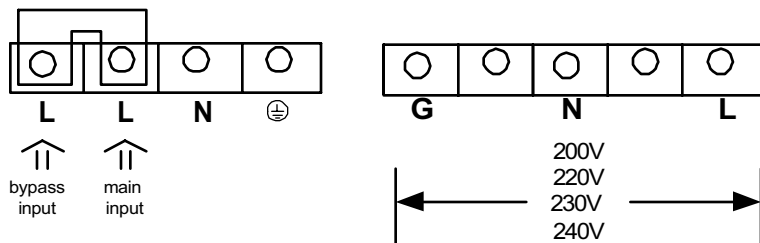
Ω SELECTION OF CABLES AND INPUT, OUTPUT CONNECTION:

SELECTION OF CABLES

TEMP. RATING OF CONDUCTOR	6KVA MODEL	10KVA MODEL
60°C	8AWG	-
70°C	8AWG	6AWG

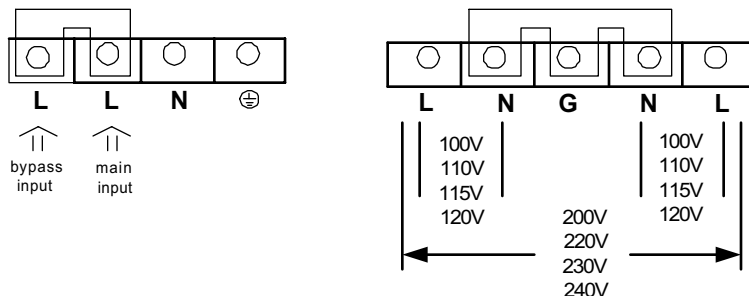
- In accordance with National Electrical Code, please install all the wiring suitable conduit and bushing.
Conduit: Flexible metal conduit of diameter is one inch.
Bushing: Overall diameter is 40.5mm, height is 13.1mm.
- When connecting the cable, please notice that:
 1. Before connecting, turn off the 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.

(A) Single phase input / single phase two wires output



* When shipped from factory, bypass input and main input terminals are shorted together.

(B) Single phase input / single phase three wires output

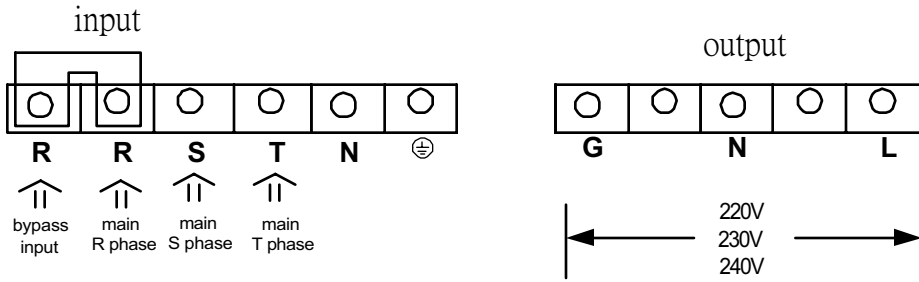


* When shipped from factory, bypass input and main input terminals are shorted together.

* When shipped from factory, N-G-N are shorted together.

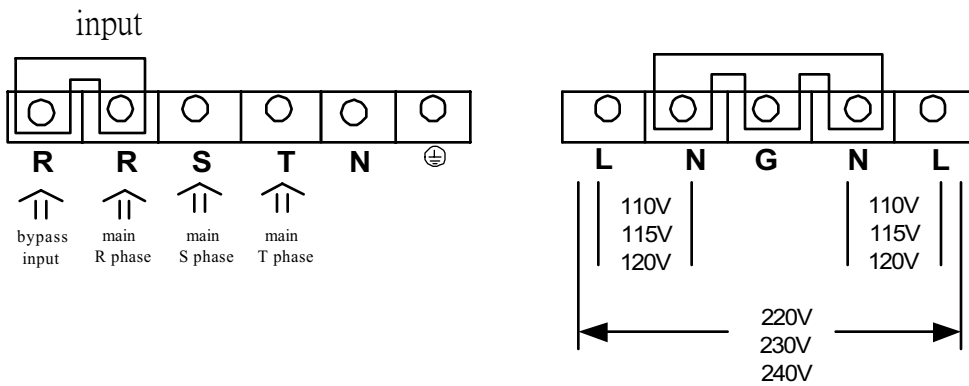
* Do not allow either one of the outputs <100V, 110V, 115V, 120V> to exceed half of maximum output, the output breaker may be tripped.

(C) Three phase four wires input / single phase two wires output (8KVA, 10KVA models only)



* When shipped from factory, bypass input and main R phase terminals are shorted together.

(D) Three phase four wires input / single phase three wires output. (8KVA, 10KVA models only)

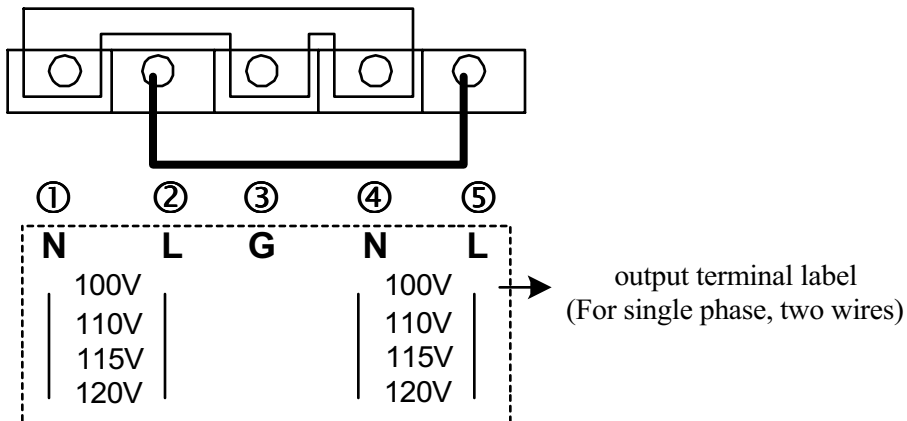


* When shipped from factory, bypass input and main R phase terminals are shorted together.

* When shipped from factory, N-G-N are shorted together.

* Do not allow either one of the outputs <100V, 110V, 115V, 120V>to exceed half of maximum output, the output breaker may be tripped.

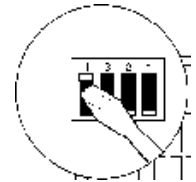
(E) How to change the output from single phase three wires into single phase two wires <100V, 110V, 115V, 120V>.



- (1). Remove the original copper plate, for single phase three wires output.
- (2). Use the accessory plate as shown above to short ①,③,④ terminals.
- (3). Use the accessory conductor to short ②,⑤ terminals.
- (4). Replace the output terminal label with new one as shown above.

Ω INITIAL SETUP

According to the desired voltage, frequency and operate mode the position of switch is shown as follow:



STANDARD TYPE DIP Switch Position

<i>ITEM</i> \ <i>SW</i>	1	2	3	4
200 V	↑	↑	/	/
220 V	↑	↓	/	/
230V	↓	↑	/	/
240V	↓	↓	/	/

<i>ITEM</i> \ <i>SW</i>	1	2	3	4
50Hz	/	/	↑	/
60Hz	/	/	↓	/
ON LINE MODE	/	/	/	↑
ECONOMY MODE	/	/	/	↓

5. OPERATION

Ω INVERTER ON/OFF

INVERTER ON:

- Turn on the AC input and output breaker, load will energize.
- 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:

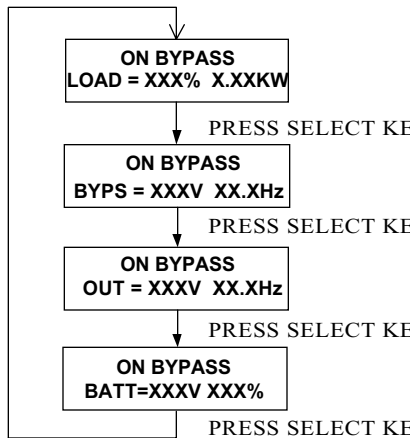
Press the inverter switch”OFF” key to disable inverter:

- 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.

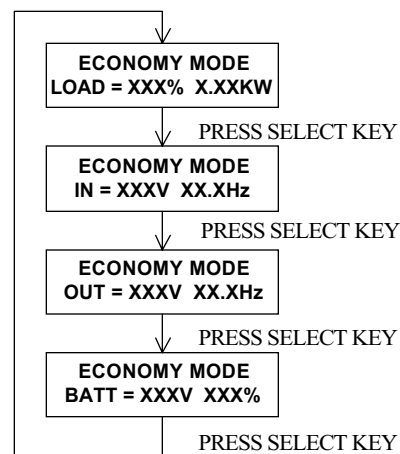
Ω LCD FUNCTION SELECT SWITCH

PRESS THE SELECT KEY ON FRONT PANEL ONCE TO SHOW DIFFERENT POWER READING ON LCD.

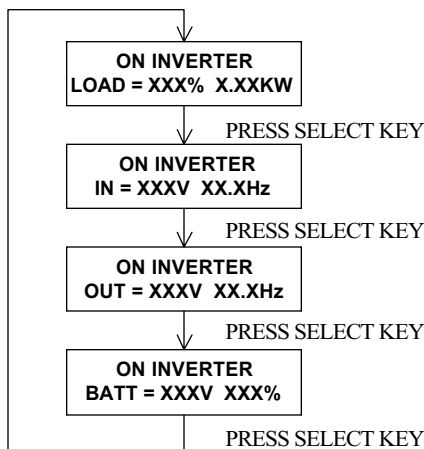
OPERATION ON THE BYPASS MODE



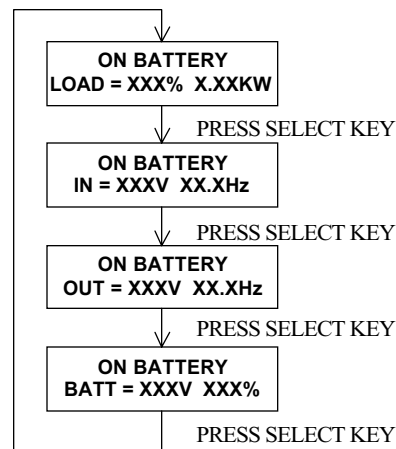
OPERATION ON THE ECONOMIC MODE



OPERATION ON THE NORMAL MODE



OPERATION ON BATTERY MODE



Ω 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.

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 EVER HI	Bypass voltage had been once too high, UPS supplies no output power to the load. Now UPS turns to normal.
BYPASS EVER LO	Bypass voltage had been once too low, UPS supplies no output power to the load. Now UPS turns to normal.

Ω OPERATION UNDER SHUTDOWN:

OPERATION ON OVERLOAD

When the UPS detects an output overload, it will commence a countdown (the length of time depending on the severity of the overload). If the UPS is still overloaded at the end of the countdown, the UPS will automatically shut down and go into Bypass Mode.

Overload Condition	LCD Display Message	Countdown to Shutdown
102%-125%	Overload 102% Load=XXX%X.XXKW	1 minute
125%-150%	Overload 125% Load=XXX%X.XXKW	30 seconds
>150%	Overload 150% Load=XXX%X.XXKW	2 seconds

OPERATION UNDER SHUT DOWN

Condition	LCD Display Message
Extended Overload (>150%)	Overload 150% Shut Down
Output Short Circuit	Shut Circuit Shut Down
Remote Shutdown Command (from RS-232 interface)	Remote Shut Down
Remote Shutdown Command (from RJ11 interface)	Emergency Stop! Shut Down
Internal Faults	Inverter Too Lo Shut Down Inverter Too Hi Shut Down DC BUS+/- High / Low Shut Down Over temperature Shut Down

Ω 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=■■■■V ■■■%
MID		
LOW	BEEP/ 0.5sec	BATTERY LOW BATT=■■■■V ■■■%
UNDER	LONG BEEP	BATTERY UNDER! SHUT DOWN...

Ω 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

- STEP 1: Turn off the inverter power switch. To transfer UPS to bypass mode.
- STEP 2: Turn the switch from “NORMAL” to “BYPASS”.
- STEP 3: Turn off the AC I/P breaker.
- STEP 4: Remove the BATT. Fuse.

BYPASS



NORMAL

- STEP 1: Insert the fuse into the battery fuse holder, and close the latch bar.
- STEP 2: Turn on the AC I/P breaker.
- STEP 3: Turn the switch from “BYPASS” back to “NORMAL”.
- STEP 4: Turn on the inverter power switch.

6. COMMUNICATION INTERFACE

Ω 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 DELTA Smart 2000 software, 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 shut-down delay time
- Enable / Disable beeper
- Remote shut-down

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

Ω AS-400 INTERFACE

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

- Operation on nominal
- Operation on bypass
- Operation on battery
- 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
BATTERY	OFF		ON	ON
LOW BATTERY	OFF	ON	ON	ON
BYPASS	ON	OFF	OFF	OFF
NOMINAL	OFF		ON	

Ω 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.

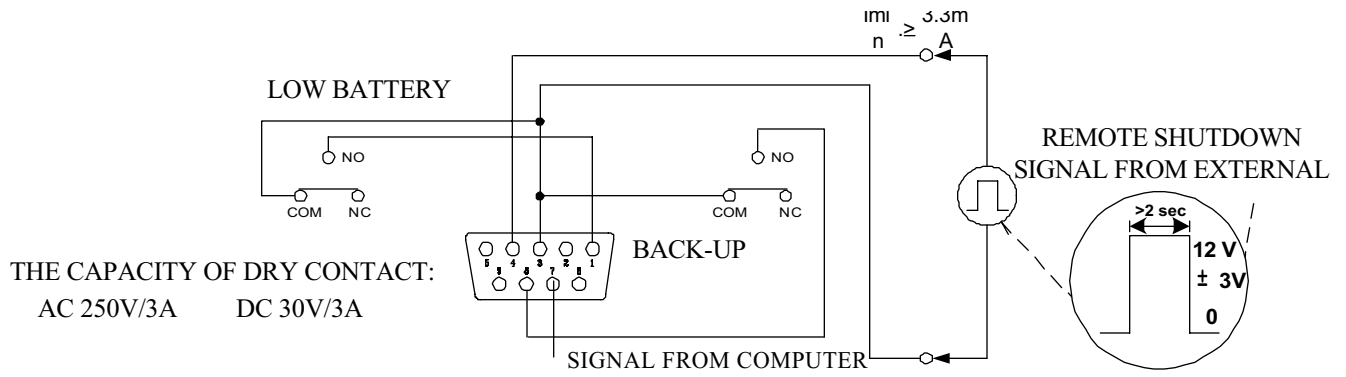
STATE \ PIN	PIN 8, 3	PIN 1,3
NORMAL	OPEN	OPEN
BACK UP	CLOSE	
LOW BATTERY	CLOSE	CLOSE

DRY CONTACT TABLE



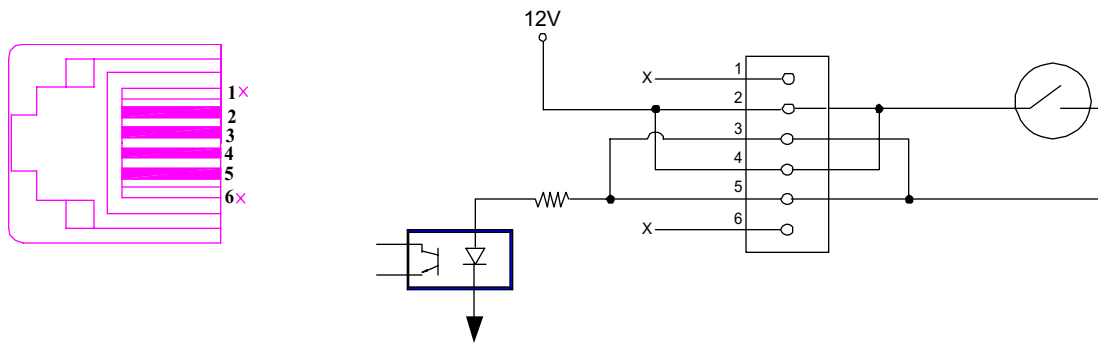
= INACTIVE: STATE MAY BE "OPEN"OR" CLOSE" CONDITION.

Pin assignment:



Ω REMOTE EMERGENCY POWER OFF

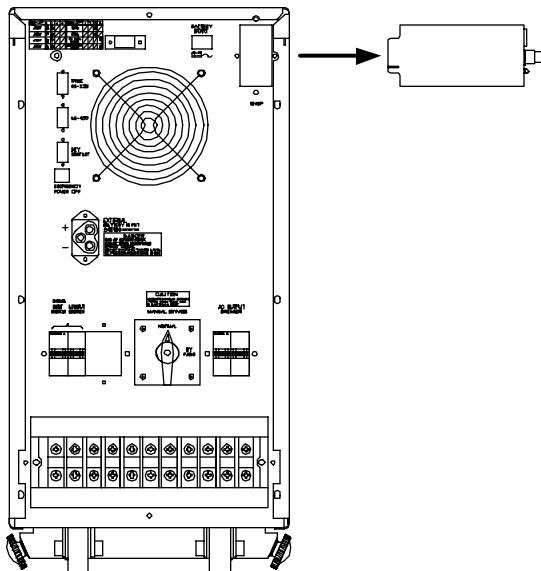
Pin assignment of RJ-11:



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.

Ω SNMP CARD

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

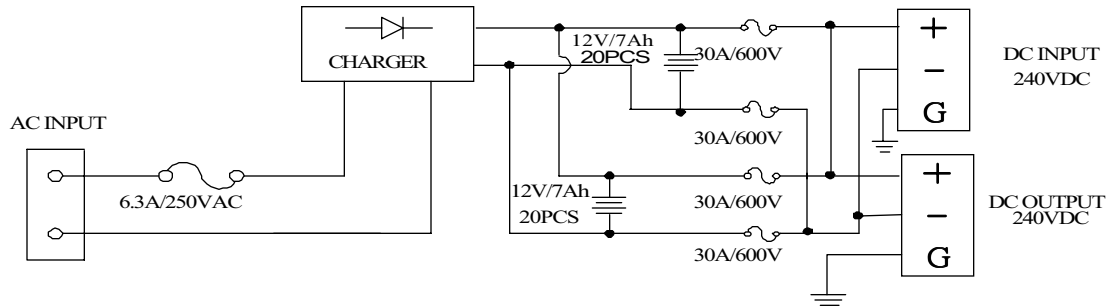


※Contact your local dealer for more information about the optional SNMP CARD.

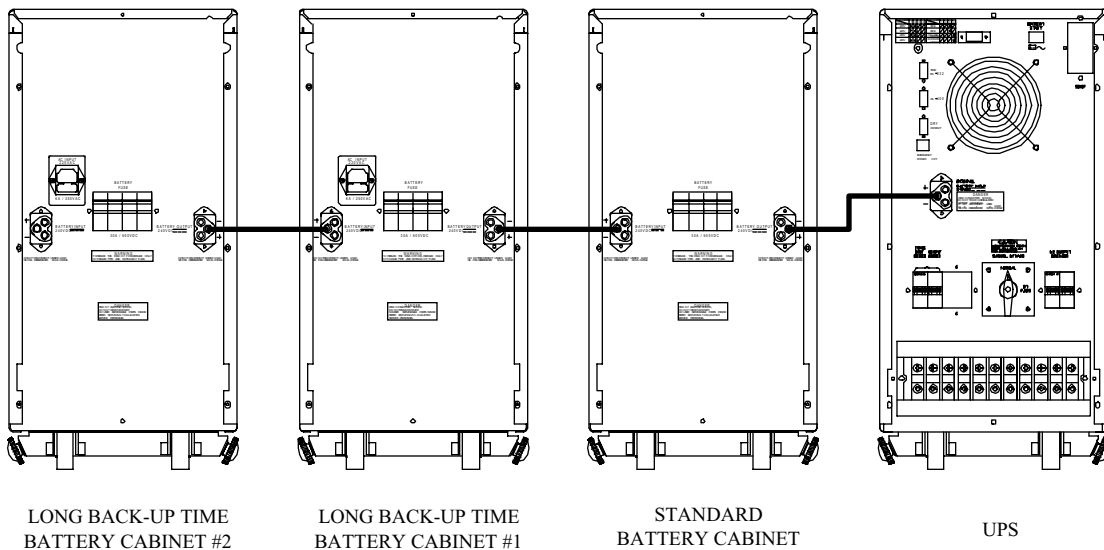
7. LONG BACK-UP TIME

Ω LONG BACK-UP TIME BATTERY CABINET

Application: The charger inside the cabinet can charge the battery.
There are 20 batteries connected in series for one unit.



BLOCK DIAGRAM OF LONG BACK-UP TIME BATTERY CABINET



CONNECTION BETWEEN UPS AND EXTERNAL BATTERY CABINET.

※ Contact your local dealer for service.

Ω EXTERNAL BATTERY CABINET FOR LONG BACK-UP TIME MODEL

- Long back-up time model have extra charger inside which can charge the external battery cabinet.
- UPS charge voltage: 274VDC
- UPS charge current: 10KVA: 6A ; 6KVA:5A
- Shutdown voltage of low battery: 200VDC
- The combination of the battery cabinet: 12V, two battery sets (20 batteries are connected in series for one set)for one cabinet. You can use more than one cabinet in parallel for application.
- Battery protection: 6KVA model –30A/600V fast-active fuse.
10KVA models–30A /600V fast-active fuse.

※ Contact your local dealer for service.

P/N: 5011315900