UPS

ON-LINE

Uninterruptible Power Supply

J-Series

5KVA~11KVA

user 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, 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 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.

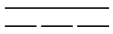
  FCC Caution: To assure continued compliance, (example-use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- ATTENTION, 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
- IEEE-C6241 Category B
- IEC 1000-2-2
- EN 61000-4-2 LEVEL3
- EN 61000-4-3 LEVEL3
- EN 61000-4-4 LEVEL4
- EN 61000-4-5 LEVEL4
- 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.

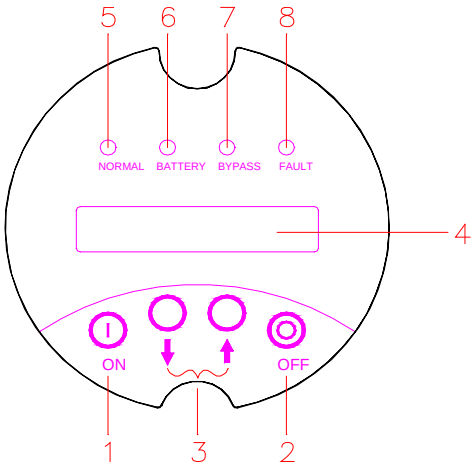
THIS SYMBOL INDICATES THE WORD "PHASE".

2. INTRODUCTION

♌ 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 (120~280Vac) reduces battery discharges.**
- **Smart charger design: It can auto boost charge to shorten charge time.**
- **RS-232 and Dry contact status select smart 2000 can to come true the UPS management for short distance and long range.**
- **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.**
- **Allow UPS to be powered on and provides stable AC power with no mains present.**
- **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:**
  - **The UPS will start again on inverter automatically when ac line returns following a low battery shut down.**
  - **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 ±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%~ - 20%. When bypass voltage is beyond protection range, UPS will supply no output power to the load.**
- **Auto detect and display Fan action.**

♌ THE EXPLANATION OF THE FRONT CONTROL PANEL

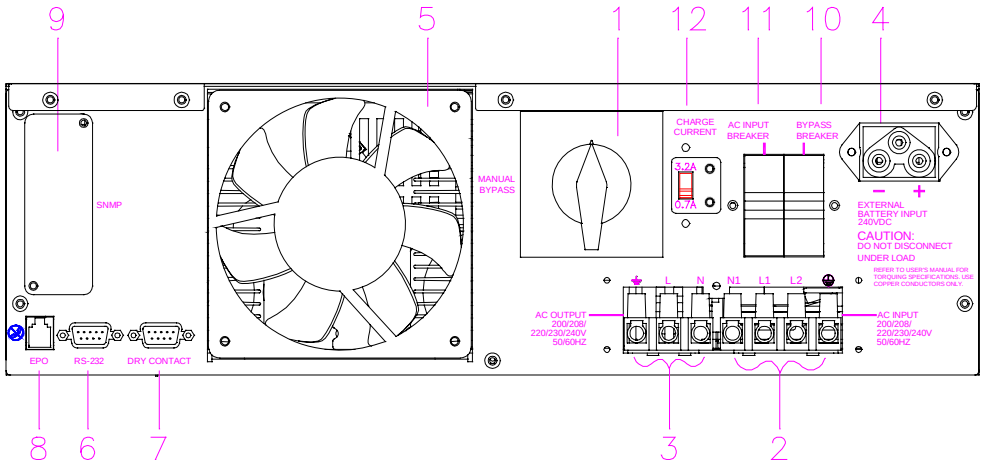


FRONT CONTROL PANEL

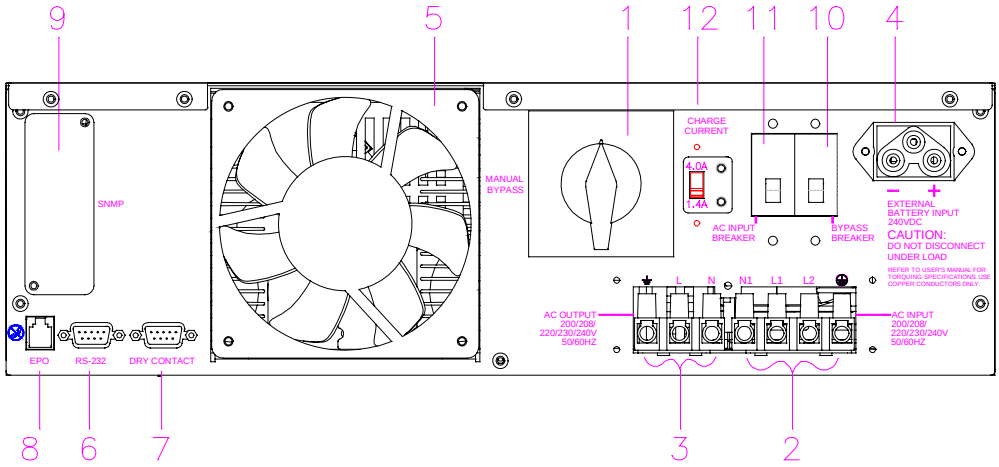
1. INVERTER ON BUTTON
   - ↳ Press “ON” key 1~3 seconds will start inverter and press “ON” key more than 3 seconds to remove alarm.
2. INVERTER OFF BUTTON
   - ↳ Press “OFF” key more than 1 second will stop inverter.
3. FUNCTION SELECT BUTTON
   - ↳ Select to set different output frequency, voltage operation mode and UP/ DOWN select LCD frame, if press (↑) more than 3 seconds will detecting battery.
4. BACKLIT LCD DOT MATRIX DISPLAY
   - ↳ 16×2 character display. Indicate the operating status I/P & O/P voltage, battery voltage.
5. NORMAL LED
   - ↳ Display UPS DC/AC circuit is working or not.
6. BATTERY LED
   - ↳ Display UPS power source from battery.
7. BYPASS LED
   - ↳ Display bypass voltage condition and UPS output voltage path from bypass.
8. FAULT LED
   - ↳ Display UPS had to happen any abnormality condition.

SHEET 6 TO 7

♌ THE EXPLANATION OF THE REAR CONTROL PANEL



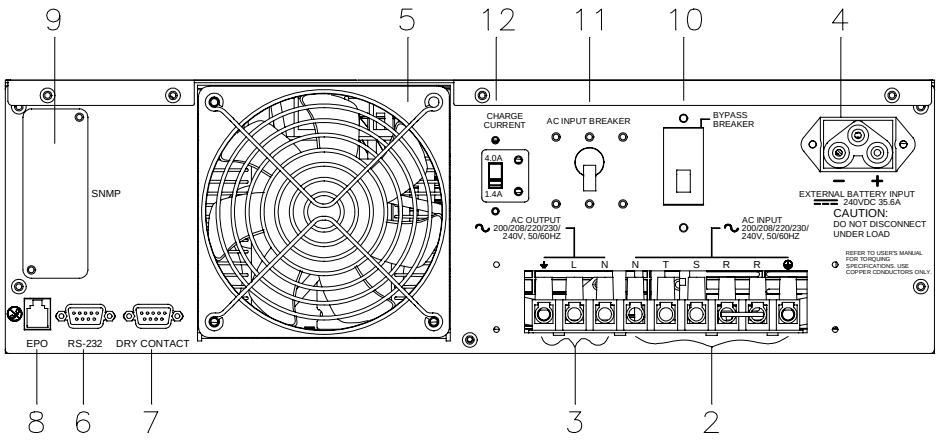
5/ 7KVA (Europe models)



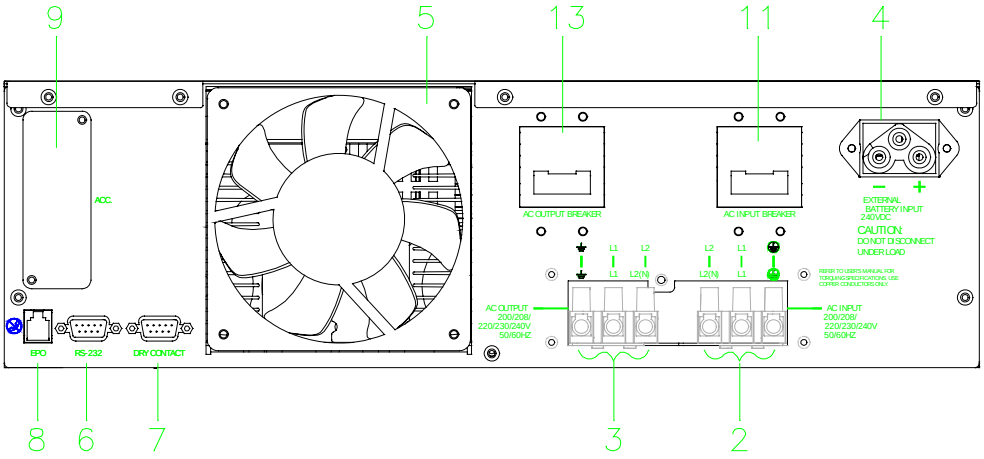
9KVA/ 11KVA 1:1 (Europe models)

SHEET 7 TO 8

♌ THE EXPLANATION OF THE REAR CONTROL PANEL



11KVA 3:1 (Europe models)



7KVA /9KVA/ 11KVA (USA models)

SHEET 8 TO 9

♌ 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). DRY CONTACT INTEERFACE PORT:

- FOR DETAILS, PLEASE REFER TO SECTION 6.

(8). REMOTE EMERGENCY POWER OFF:

- FOR DETAILS, PLEASE REFER TO SECTION 6.

(9). SNMP CARD:

- FOR DETAILS, PLEASE REFER TO SECTION 6.

(10). BYPASS INPUT BREAKER:

- UPS POWER FROM BYPASS INPUT, AND TO PROVIDE SAFE PROTECTION.

(11). AC INPUT BREAKER:

- UPS POWER FROM AC INPUT, AND TO PROVIDE SAFE PROTECTION.

(12). CHARGE CURRENT SELECT:

- SELECT DIFFERENT CHARGE CURRENT, WHEN BATTERY CAPACITY LESS THAN 17AH, PLEASE SELECT LESS CHARGE CURRENT. GES502J & GES702J:0.7A~3.2A,GES902J & GES113J: 1.4A~4A.

(13). AC OUTPUT BREAKER:

- BREAKER CONTROL OUTPUT PROTECTION, CONNECT TO LOAD.

SHEET 9 TO 10

3. TECHNICAL DATA

MODEL	5KVA	7KVA	9KVA	11KVA (1:1)	11KVA (3:1)
1. POWER					
1.1 POWER (VA)	5000VA	7000VA	9000VA	11000VA	11000VA
1.2 POWER (W)	4000W	4900W	6600W	8000W	7700W
2. WAVE	SINEWAVE				
3. INPUT					
3.1 INPUT VOLTAGE	120~156(70%→100% Load Linear) 156V~280V FULL LOAD				120~166 (60%→100% Load Linear) 166~268V Full Load
3.2 INPUT CURRENT	25A	30A	40A	50A	
- INRUSH CURRENT	< 200A				
- POWER FACTOR	> 0.99 (At NORMAL LINE and FULL LOAD)				> 0.9
3.3 EFFICIENCY (FULL RESISTANCE LOAD)					
- ON LINE MODE	92%				
- ECONOMY MODE	97%				
3.4 INPUT FREQUENCY	50/60Hz ± 0.5,1, 2, 3, 4, 5 Hz (Programmable)				
3.5 INPUT PROTECTION CIRCUIT BREAKER	40A (1 pole x 2) for Europe	40A(1 pole x 2) for Europe 40A(2 pole x 1) for USA	63A (1 pole x 2) for Europe 63A (2 pole x 1) for USA		63A (1 Pole*1) 25A (3 Pole*1) for Europe
4. OUTPUT					
4.1 OUTPUT VOLTAGE					
- RMS VOLTAGE	200/ 208/ 220/230/240V				
- STATIC REGULATION	± 2%				
4.2 HARMONIC DISTORTION	< 3%				
4.3 OVERLOAD CAPABILITY	≦102% CONTINUOUS				
	102%~125%: 1MINUTE				
	125%~150%: 30 SECONDS				
	> 150%: immediate (>16 CYCLES)				
4.4 OVERLOAD RELEASE	90± 5% (RATED LOAD)				
4.5 SHORT CIRCUIT PROTECTION TIME	≦3min No latch ≧3 min shutdown without output				UPS shutdown without Output
4.6 OUTPUT FREQUENCY	50/60Hz ± 0.5Hz (On Battery)				
4.7 OUTPUT PROTECTION CIRCUIT BREAKER	Electronic protection (for Europe)				
	N/A	40A(2pole*1) for USA	63A(2pole*1) for USA		N/A
4.8 CREST FACTOR	3:1		2.7:1		

SHEET 10 TO 11

MODEL	5KVA	7KVA	9KVA	11KVA (1:1)	11KVA (3:1)
5. BATTERY & CHARGER					
5.1 TYPES	Sealed Lead Acid				
5.2 NUMBER OF BATTERY	12V battery x 20 PCS				
5.3 PROTECTION	30A/ 600V x 2pcs FUSE				
5.4 RECHARGE VOLTAGE	Floating 274 VDC/ Boost 280VDC				
5.5 RECHARGE CURRENT	8Hrs 90%				
- STANDARD MODE	0.7A at 250VDC (175W)		1.4A at 250VDC (350W)		
- ENHANCE MODE	3.2A at 250VDC (800W)		4A at 250VDC (1000W)		
5.6 BATTERY LEAKAGE CURRENT	≦ 1mA				
5.7 BATTERY LOW VOLTAGE ALARM	220VDC± 3%				
5.8 BATTERY SHUTDOWN VOLTAGE	212VDC± 3%(discharge exceed 1hour) 200VDC± 3%				
5.9 BACK-UP TIME	≧9MIN (4000W) 12V/ 7Ah x 20PCS	≧7MIN (4900W) 12V/ 7Ah x 20PCS	≧7MIN (6600W) 12V/ 9Ah x 20PCS	≧5MIN (8000W) 12V/ 9Ah x 20PCS	≧5MIN (7700W) 12V/ 9Ah x 20PCS
6. OPERATION					
6.1 TRANSFER TIME					
- ON-LINE MODE					
- MAIN POWER FAILURE	0ms				
- MAIN POWER RECOVER	0ms				
- INVERTER TO BYPASS	< 1ms				
- BYPASS TO INVERTER	< 1ms				
- ECONOMY MODE					
- MAIN POWER RECOVER	0ms				
- INVERTER TO BYPASS	< 1ms				
- BYPASS TO INVERTER	< 1ms				
- MAIN POWER FAILURE	8ms (Typical)				
6.2 AUDIBLE NOISE	< 53 dBA		< 55 dBA		
7. INDICATIONS					
7.1 LED STATUS MIMIC DIAGRAM	NORMAL, BATTERY, BYPASS, FAULT				
7.2 LCD DISPLAY	REFER TO CHAPTER 5				

SHEET 11 TO 12

MODEL	5KVA	7KVA	9KVA	11KVA (1:1)	11KVA (3:1)
8. COMMUNICATIONS					
8.1 RS-232	REFER TO CHAPTER 6				
8.2 DRY CONTACT	REFER TO CHAPTER 6				
8.3 SNMP FUNCTION	REFER TO CHAPTER 6				
8.4 REMOTE EMERGERCY POWER OFF	REFER TO CHAPTER 6				
9. CONNECTION					
9.1 INPUT TERMINAL BLOCK	65A/ 250V 4PIN x 1				65A/ 250V 6PIN x 1
9.2 OUTPUT TERMINAL BLOCK	65A/ 250V 3PIN x 1				
9.3 EXTENDED BATTERY I/P SOCKET	40A				
10. MANUAL BYPASS SWITCH FUNCTION	32A (for Europe)		50A (for Europe)		N/A
11. OUTLOOK					
11.1 DIMENSION					
- DEPTH (D)	563.3mm/ 22.18inches				590.3mm/ 23.24 inches
- WIDTH (W)	444.5mm/ 17.5inches				
- HIGHTH (H)	130.6mm/ 5.14inches				
- NET WEIGHT	20.5KG/ 45.194 LB		24.5KG/ 54.013LB		27KG/ 59.524 LB
- BATTERY CABINET WEIGHT	69.5KG/ 153.2LB				
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% H				
13. STANDARDS					
13.1 UL 1778	MEET				
13.2 CSA 22.2-107	MEET				
13.3 FCC CLASS A	MEET				
13.4 IEEE-C6241 CATEGORY B	MEET				
13.5 EN50091-1-1	MEET				
13.6 EN 50091-2 CLASS A	MEET				
13.7 IEC 1000-2-2	MEET				
13.8 EN 61000-4-2 LEVEL 3	MEET				
13.9 EN 61000-4-3 LEVEL 3	MEET				
13.10 EN 61000-4-4 LEVEL 4	MEET				
13.11 EN 61000-4-5 LEVEL 4	MEET				
13.12 LNS 13438 CLASS A	MEET				

SHEET 12 TO 13

Battery Run Time Table

J 11K 8000Watts/ 11000VA										
	800W	**1600W**	**2400W**	**3200W**	**4000W**	**4800W**	**5600W**	**6400W**	**7200W**	**8000W**
BBR120920*1	90	40	25	18	14	11	9	7	6	5
BBR120920*2	191	93	61	43	30	24	20	17	15	14
BBR120920*3	293	143	96	71	53	44	34	27	24	22
BBR120920*4	392	199	135	99	84	60	51	43	35	30
BBR120920*5	525	261	172	120	102	86	67	56	48	42
BBR120920*6	637	312	201	142	113	102	87	68	60	53
BBR120920*7	778	355	258	181	145	116	103	87	73	65
BBR120920*8	913	464	276	213	151	136	117	102	88	76
BBR120920*9	1013	501	332	288	213	152	135	107	101	90
BBR120920*10	1153	573	372	247	193	175	143	121	107	101
J 11K 7700Watts/ 11000VA										
	770W	**1540W**	**2310W**	**3080W**	**3850W**	**4620W**	**5390W**	**6160W**	**6930W**	**7700W**
BBR120920*1	90	41	27	19	14	11	9	8	6	5
BBR120920*2	191	93	61	43	35	29	22	19	15	14
BBR120920*3	295	145	97	72	57	45	37	32	28	25
BBR120920*4	395	202	138	101	86	62	53	45	39	34
BBR120920*5	529	263	176	125	106	88	69	60	50	45
BBR120920*6	640	316	206	145	118	105	90	71	63	57
BBR120920*7	782	359	262	186	149	120	107	91	76	68
BBR120920*8	915	466	279	215	153	141	120	106	92	79
BBR120920*9	1015	503	335	291	216	155	138	110	103	93
BBR120920*10	1156	575	374	250	195	178	147	124	110	103
J 9K 6600 Watts/ 9000VA										
	660W	**1320W**	**1980W**	**2640W**	**3300W**	**3960W**	**4620W**	**5280W**	**5940W**	**6600W**
BBR120920*1	107	51	30	22	17	14	12	10	8	7
BBR120920*2	205	109	76	53	45	30	26	22	19	17
BBR120920*3	361	183	111	88	67	54	46	36	30	26
BBR120920*4	513	255	170	113	97	78	62	54	48	41
BBR120920*5	673	319	212	144	116	101	87	68	58	53
BBR120920*6	821	392	251	188	141	114	102	88	75	67
BBR120920*7	1032	487	297	233	176	142	117	104	91	80
BBR120920*8	1132	501	338	268	211	174	137	115	106	98
BBR120920*9	1267	643	411	311	273	213	165	135	115	107
BBR120920*10	1478	713	432	325	269	223	187	151	134	113
J 7K 4900 Watts/ 7000VA										
	490W	**980W**	**1470W**	**1960W**	**2450W**	**2940W**	**3430W**	**3920W**	**4410W**	**4900W**
BBR120920*1	138	68	48	30	25	21	17	14	11	10
BBR120920*2	302	145	106	78	60	49	38	30	26	24
BBR120920*3	501	243	147	121	99	79	66	55	48	42
BBR120920*4	665	312	241	153	128	109	93	75	67	60
BBR120920*5	876	421	288	219	156	133	118	101	88	78
BBR120920*6	1021	545	335	269	205	154	134	123	107	98
BBR120920*7	1245	630	426	307	241	207	155	137	121	107
BBR120920*8	1498	734	487	362	285	241	211	152	138	130
BBR120920*9	1697	812	543	412	311	273	238	188	153	141
BBR120920*10	1889	945	634	455	350	289	253	217	197	151

SHEET 13 TO 14

Battery Run Time Table

J 7K 4900 Watts/ 7000VA										
	490W	**980W**	**1470W**	**1960W**	**2450W**	**2940W**	**3430W**	**3920W**	**4410W**	**4900W**
BBR120720*1	121	57	37	28	21	15	12	10	8	7
BBR120720*2	266	125	80	61	53	37	30	24	22	20
BBR120720*3	447	203	124	101	83	66	55	45	38	32
BBR120720*4	578	244	185	128	108	90	75	61	53	45
BBR120720*5	756	364	245	169	132	110	98	77	69	57
BBR120720*6	889	453	287	232	164	133	118	102	86	72
BBR120720*7	1078	554	362	266	205	161	129	121	102	87
BBR120720*8	1210	643	422	304	242	203	162	136	118	100
BBR120720*9	1428	755	477	348	268	232	174	161	128	116
BBR120720*10	1650	831	550	381	301	255	215	184	164	127
J 5K 4000 Watts/ 5000VA										
	400W	**800W**	**1200W**	**1600W**	**2000W**	**2400W**	**2800W**	**3200W**	**3600W**	**4000W**
BBR120720*1	170	91	49	33	25	21	16	13	11	9
BBR120720*2	358	170	110	84	60	46	39	31	27	25
BBR120720*3	540	260	170	120	100	75	64	57	52	45
BBR120720*4	740	355	240	170	122	110	95	84	68	60
BBR120720*5	892	505	290	235	170	135	119	105	92	84
BBR120720*6	1120	540	355	260	225	170	140	120	110	100
BBR120720*7	1250	689	470	313	244	190	170	157	145	133
BBR120720*8	1615	835	533	396	284	230	184	170	159	149
BBR120720*9	1823	948	583	461	339	268	227	180	170	161
BBR120720*10	2056	1040	675	513	403	298	254	211	180	170

SHEET 14 TO 15

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. When the unit has passed the initial inspection, record the purchase date on the back panel of the unit and in the space provided in the front of the manual.

Appendage: 1. User manual × 1
2. RS232 CABLE × 1
3. UPSentry CD × 1
4. Battery cable× 1

♌ STORAGE AND BATTERY MAINTENANCE

- If the ON-LINE UPS is to be stored prior to installation, it should be placed in a dry, ventilated area where it will not be exposed to dirt, moisture or other contaminates.
- Extreme storage temperatures:
  -20°C to + 60°C without battery.
  -20°C to + 45°C with battery for a short period.
- Maximum storage period for battery: 6 months at 20°C or 3 months at 30°C.

Important: 1. When the ON-LINE UPS is to be stored for longer than 3 months, it is recommended to recharge the battery every 3 months.
2. Do not stack these units.

♌ VENTILATION

The ON-LINE UPS is intended for installation in a temperature and humidity controlled indoor area free of conductive contaminants. Ambient temperature must not exceed 40°C (104°F).

IMPORTANT: maximum battery life is obtained by placing the battery in a room at an ambient temperature of 15°C to 25°C. Battery life decreases by half for every 10°C above 25°C.

SELECTION OF CABLES:

Cable cross-sections depend on carried current:

■ Current carried:

MODEL	*RATED INPUT CONNECTOR WIRES*	*RATED OUTPUT CONNECTOR WIRES*
5/ 7 KVA	8AWG or $8mm^2$	8AWG or $8mm^2$
9/ 11 KVA	6AWG or $14mm^2$	6AWG or $14mm^2$

SELECTION OF CONDUIT AND BUSHING:

In accordance with National Electrical Code, please install all the wiring with suitable conduit and bushing.

The suggestion is:

Conduit: Flexible metal conduit sized one inch.

Bushing: Overall diameter is 40.5mm, height is 13.1mm.

UPS SETTING CABINETS FIX:

1. To fix the UPS with hang up ear. (Fig. 1)
2. To adjust fit length track location and enhance to fix in cabinet inner, then fix hang up ear in track. (Fig. 2)

If need to fix components for cabinets, please contact agent in the locality.

3. Connect two pieces of "support stand". Prepare two sets of support stand combination.
   Notice the suitable width for UPS racks!
4. Put UPS among the support stand combination. (Fig. 3)
   Be sure to keep at least 30cm distance on the front and rear side.

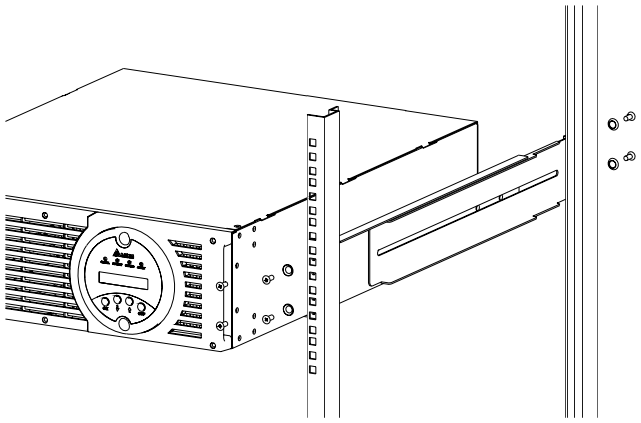
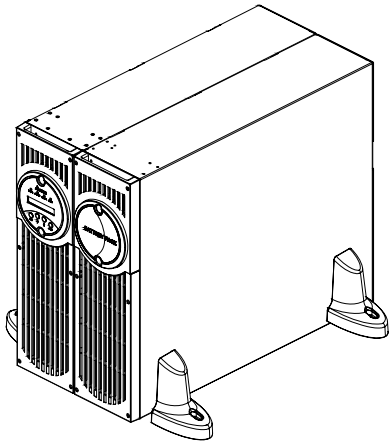
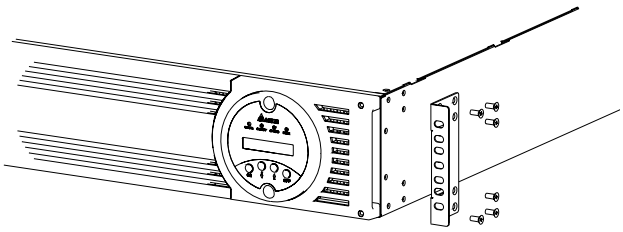


Fig.2 ↑



←Fig. 3



← Fig. 1

SHEET 16 TO 17

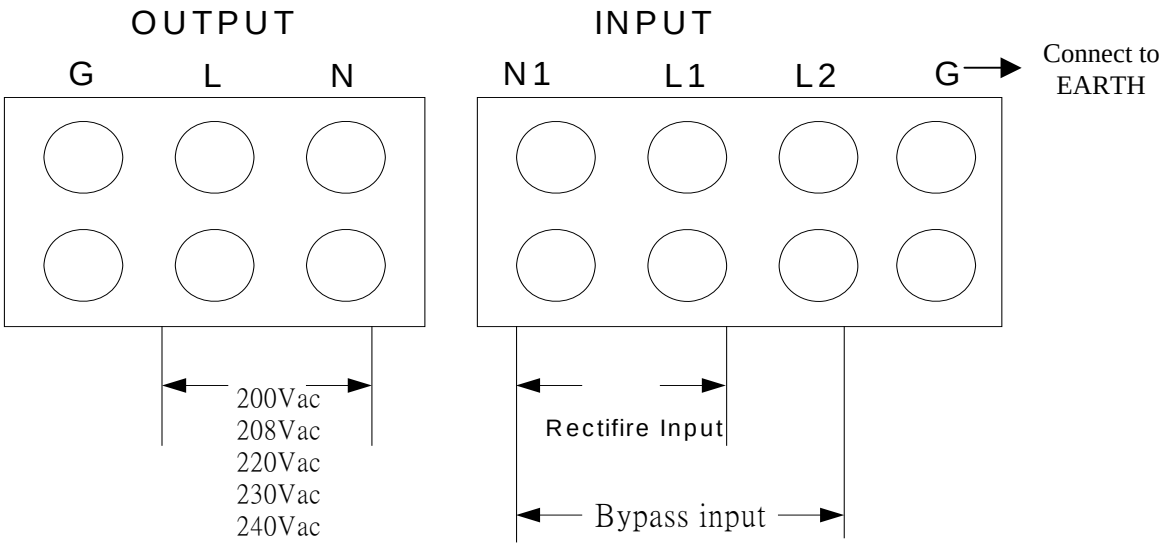
INPUT AND OUTPUT CONNECTION:

When connecting the cable, please notice that:

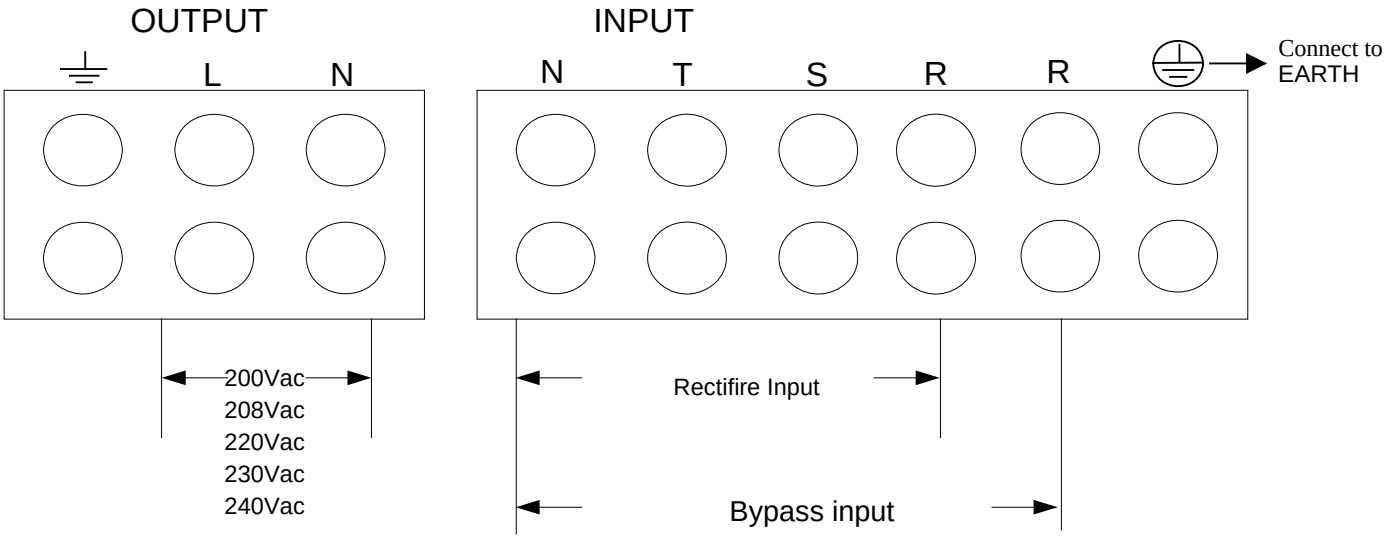
1. Before connecting, turn off the UPS and cut off not merely the AC source but also the battery.
2. Ensure the cable is fitted. The minimum tightening torque shall not be less than 35 lbs with a cable sleeve & secured by the connector clamp.
3. Connect the EARTH wire to the terminal marked with " G " .

The connective methods of input and output:

(A) Europe model



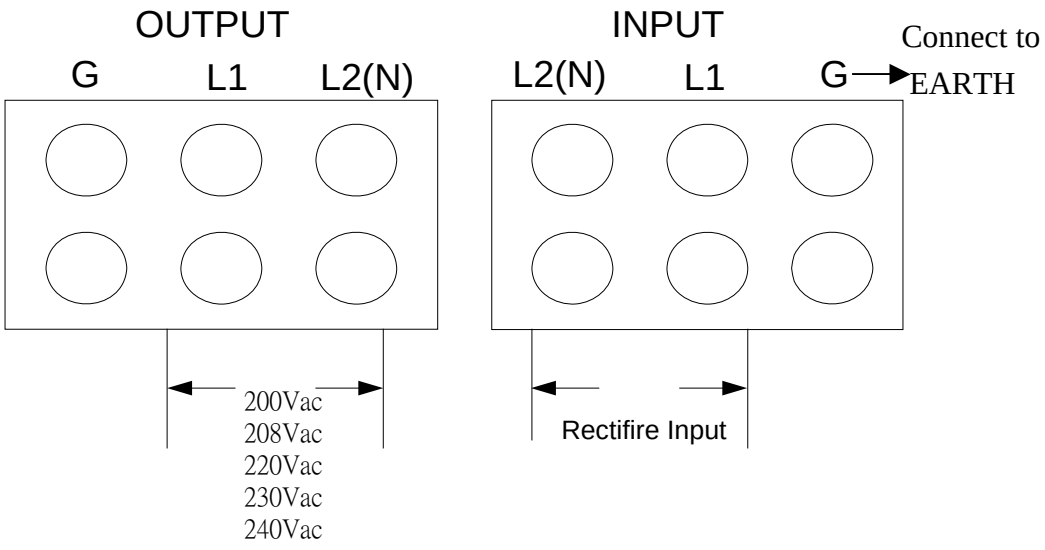
5KVA/ 7 KVA/ 9 KVA/ 11 KVA



11KVA (3:1)

SHEET 17 TO 18

(B) US model



SHEET 18 TO 19

5. OPERATION

♌ INVERTER ON/OFF

INVERTER ON:

- Turn on the AC input, load will energize.
- When the AC input is normal, press the inverter switch “ON” key 1~3 seconds.
- When the AC input is failure, press the switch “ON” key for more than 3 seconds to turn on inverter from battery.
- The UPS starts to self-test and shows the results on the back-lit LCD display, as show below.

SELF-TEST MODE

AC START

DIAGNOSTIC MODE
FREO OUT=XXHz
⇩
DIAGNOSTIC MODE
INPUT AC OK!
⇩
DIAGNOSTIC MODE
BATTERY OK!
⇩
DIAGNOSTIC MODE
CHARGER OK!
⇩
DIAGNOSTIC MODE
AC / DC OK!
⇩
DIAGNOSTIC MODE
TESTING INVERTER
⇩
ON LINE MODE
LOAD = XXX% X.XXKW

BATTERY START

DIAGNOSTIC MODE
FREQ OUT=XXHz
⇩
DIAGNOSTIC MODE
INPUT AC BAD!
⇩
DIAGNOSTIC MODE
BATTERY OK!
⇩
DIAGNOSTIC MODE
AC / DC OK!
⇩
DIAGNOSTIC MODE
TESTING INVERTER
⇩
ON BATTERY
LOAD = XXX% X.XXKW

After self-testing, the load is supplied by inverter, if self-testing is failure, as show below.

ERROR MESSAGE:

BAD BATTERY	BAD BATTERY! CALL FOR SERVICE
CHARGER FAILURE	CHARGER FAILURE! CALL FOR SERVICE
AC /DC FAILURE	AC /DC FAILURE! CALL FOR SERVICE
INVERTER FAILURE	INVERTER FAILURE! CALL FOR SERVICE
OUTPUT FAILURE	OUTPUT FAILURE! CALL FOR SERVICE
FAN FAILURE	FAN FAILURE! CALL FOR SERVICE

INVERTER OFF:

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

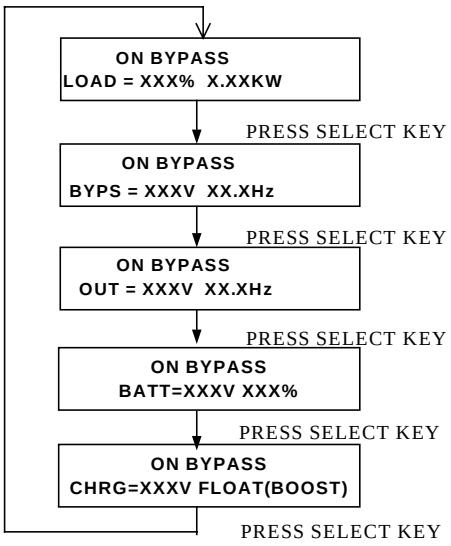
- If AC input power exists, UPS will transfer to BYPASS MODE.
- If back-up mode, LCD display ”UPS OFF WAITING” about thirty seconds then to go out.
- If will remove battery connect wire, until LCD display “UPS OFF WAITING” to go out.

SHEET 20 TO 21

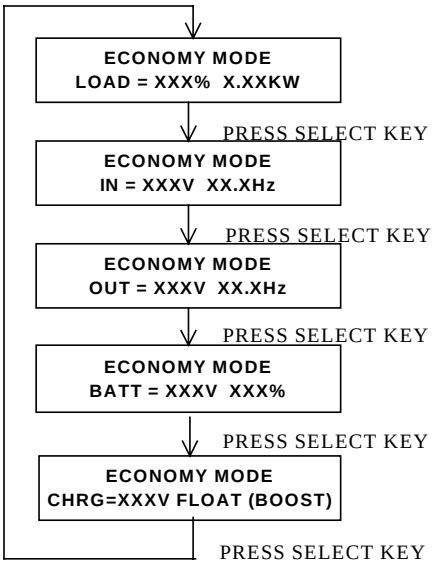
♌ LCD FUNCTION SELECT SWITCH

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

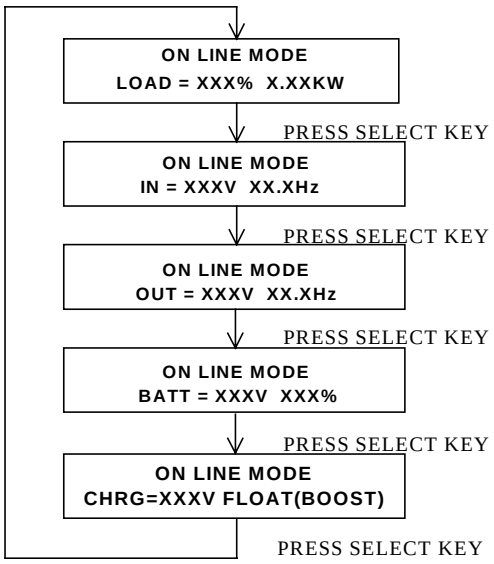
OPERATION ON THE BYPASS MODE



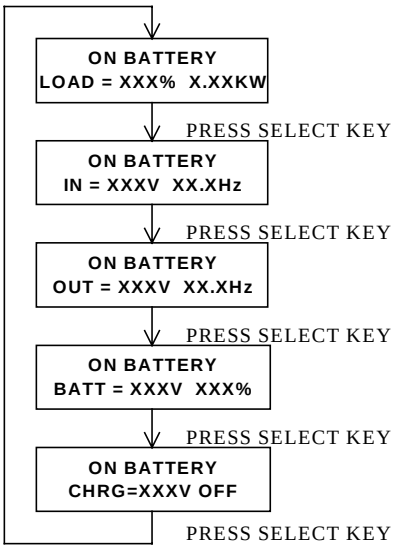
OPERATION ON THE ECONOMIC MODE



OPERATION ON THE NORMAL MODE



OPERATION ON BATTERY MODE



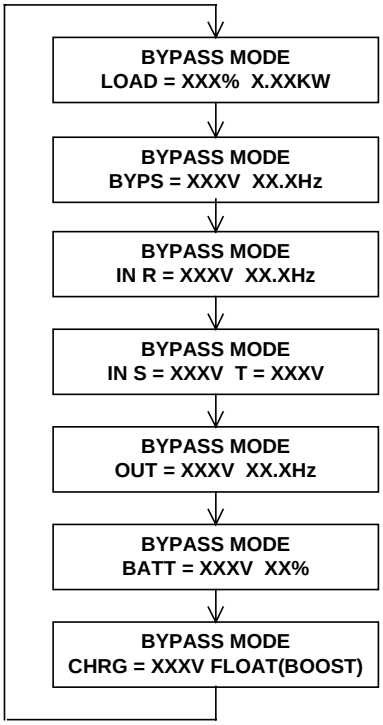
5KVA & 7KVA & 9KVA & 11KVA

SHEET 21TO 22

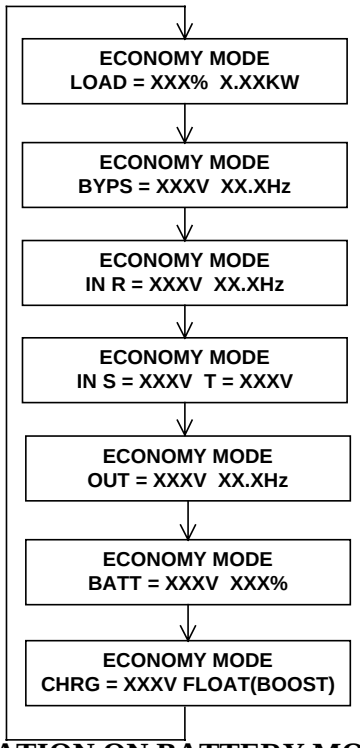
♌ LCD FUNCTION SELECT SWITCH

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

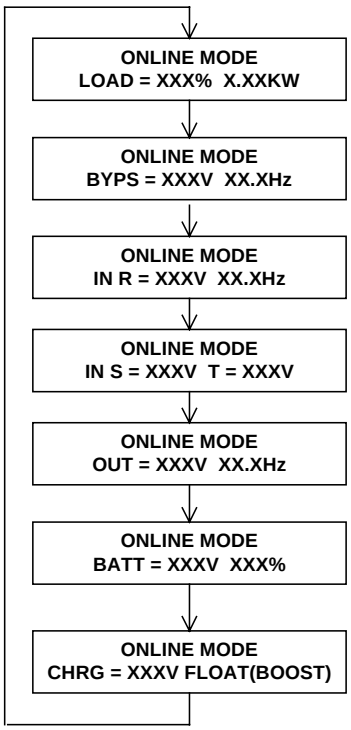
OPERATION ON THE BYPASS MODE



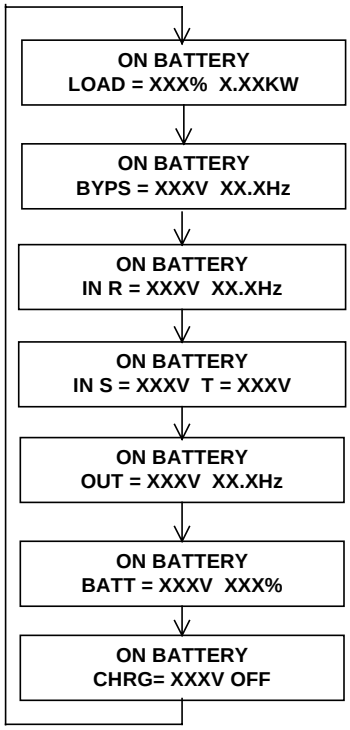
OPERATION ON THE ECONOMIC MODE



OPERATION ON THE NORMAL MODE



OPERATION ON BATTERY MODE

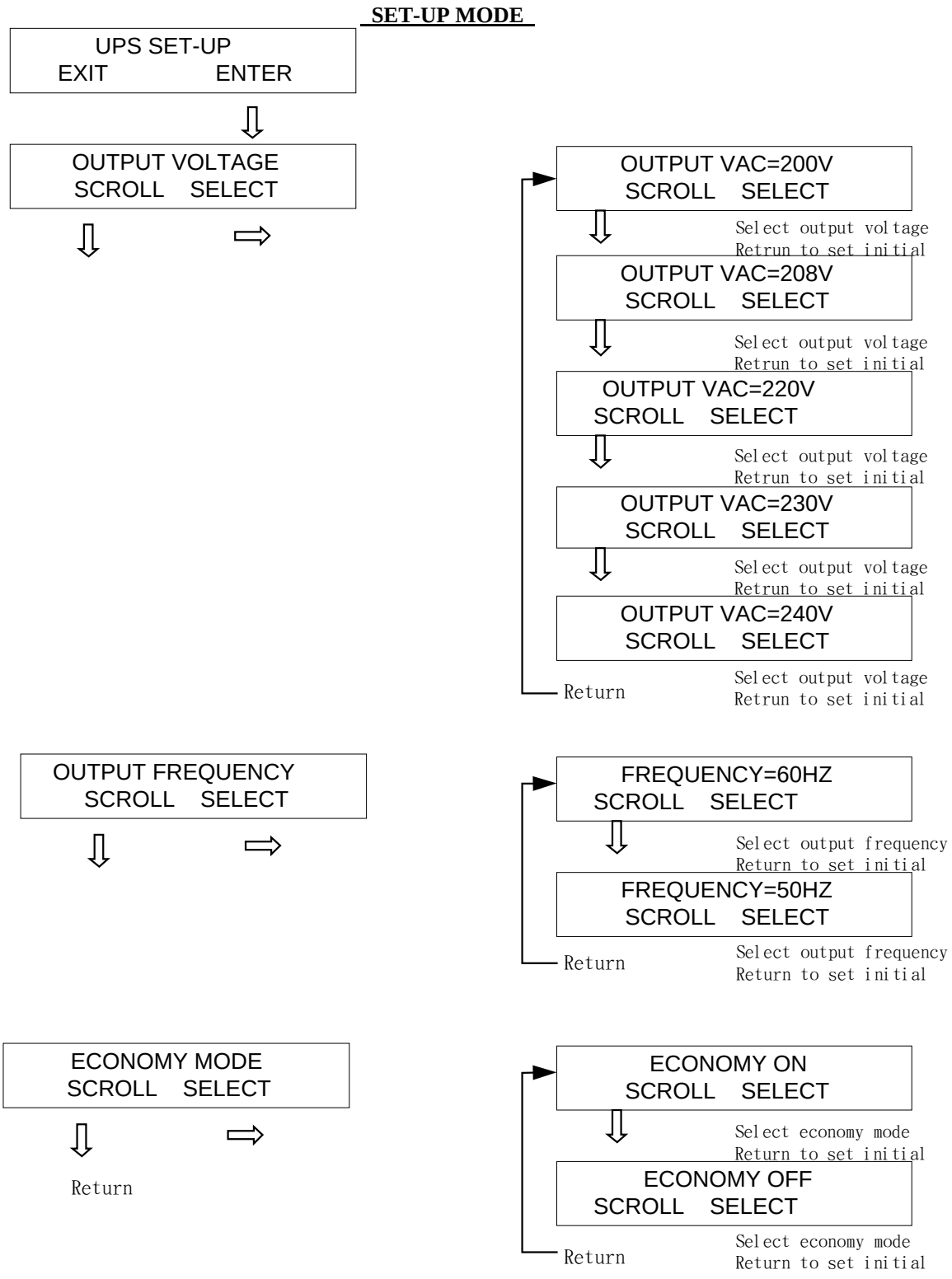


11KVA (3 : 1)

SHEET 22 TO 23

PARAMETER SET-UP MODE

The same time push down both up(↑) and down(↓) key 3 seconds, UPS will enter to set-up mode：



SHEET 23 TO 24

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.

NO OUTPUT BYPASS AC TOO HI	Bypass voltage is too high more than 115% rating voltage; UPS supplies no output power to the load.
NO OUTPUT BYPASS AC TOO LOW	Bypass voltage is too low less than 80% rating voltage; UPS supplies no output power to the load.
BYPASS MODE BYPASS AC WAS HI	Bypass voltage had been once too high, UPS supplies no output power to the load. Now UPS turns to normal.
BYPASS MODE BYPASS AC WAS LOW	Bypass voltage had been once too low, UPS supplies no output power to the load. Now UPS turns to normal.

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	Immediate

OPERATION UNDER SHUT DOWN

Condition	LCD Display Message
Extended Overload	Shut Down Overload xxx%
Output Short Circuit	Shut Down Short Circuit
Remote Shutdown Command	Shut Down Remote Command
Emergency stop power off	Shut Down Emergency Stop!
DC BUS Fault	Shut Down DC BUS+/-, High/ Low
Internal Temperature Faults	Shut Down Over temperature

SHEET 24 TO 25

♌ 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=*XXXV XXX%*
MID		
LOW	BEEP/ 0.5sec	LOW BATTERY SHUTDOWN IMMINENT
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.
- STEP 2: Turn the switch from “NORMAL” to “BYPASS”.
- STEP 3: Turn off the AC I/P breaker.
- STEP 4: Remove the battery connects wire.

BYPASS → NORMAL

- STEP 1: To insert the battery connect wire.
- 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.

SHEET 25 TO 26

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 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)
- Pin 7: PNP (Signal Receiving)

Hardware:

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

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.

PIN / STATE	PIN 8, 3	PIN 1,3	PIN 6, 3
NORMAL	OPEN	OPEN	OPEN
BACK UP	CLOSE		OPEN
LOW BATTERY	CLOSE	CLOSE	OPEN
FAULT	OPEN	OPEN	CLOSE

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

Pin assignment:

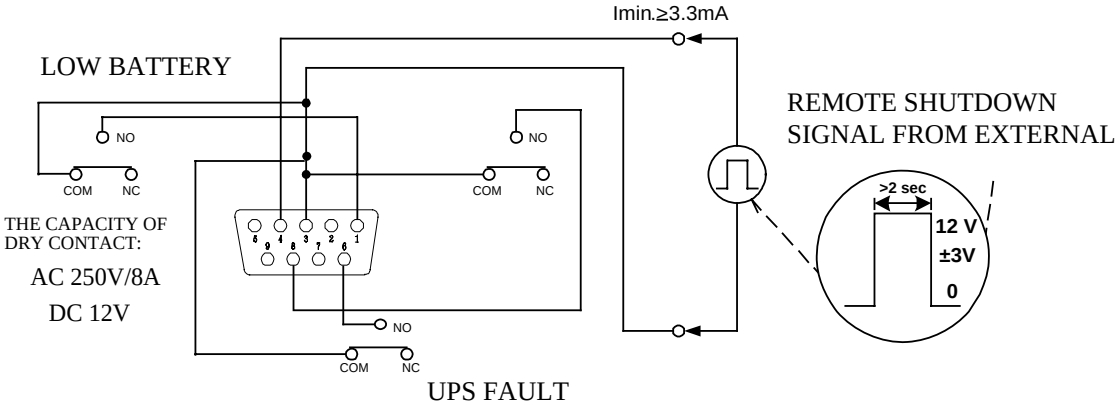
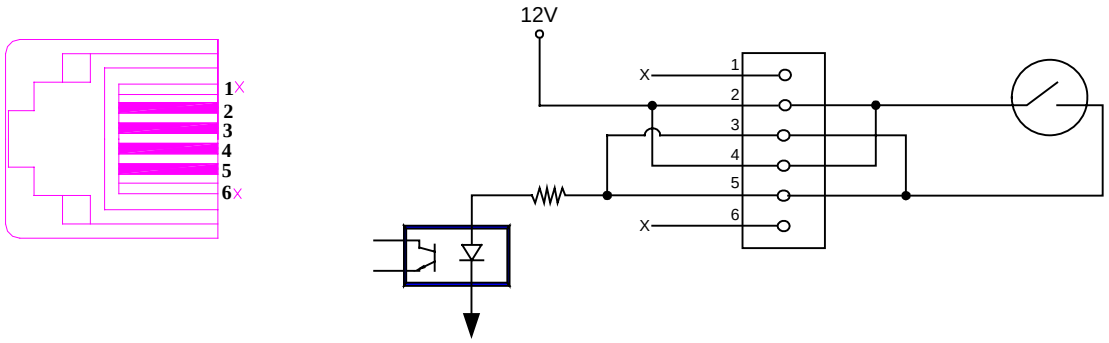


FIG. 5-2

SHEET 26 TO 27

REMOTE EMERGENCY POWER OFF

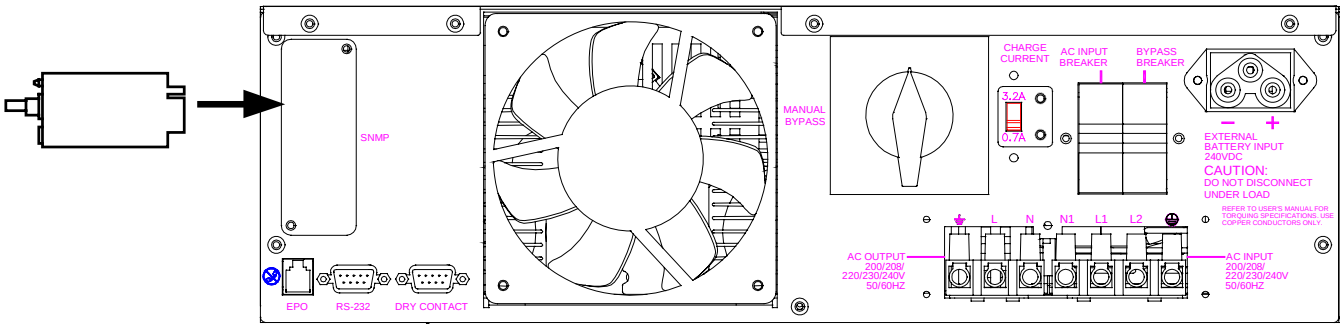
Pin assignment of RJ-11:



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.

SHEET 27 TO 28

SHEET 28 TO END

P/N:5011316802