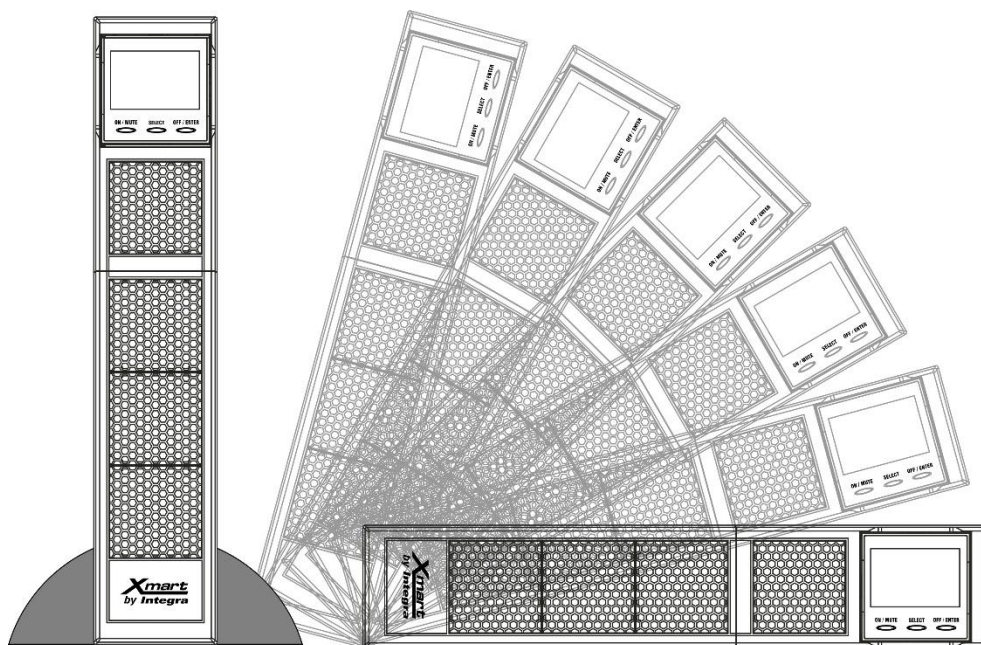


USER MANUAL OPTIMA RT9W 1K/2K/3K

UPS ONLINE DOUBLE CONVERSION RACK / TOWER INSTALLATION

**230V SCHUKO
120/220V IEC
120V NEMA
220V NEMA**



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1. GENERAL SAFETY INSTRUCTIONS

WARNING: It is required to read and understand this manual. Follow all instructions given in this manual for starting up and operating this product. Only qualified technician must start-up, operate and maintain this product. Keep manuals as a guide for future consults. UPS manufacturer or distributor will never be responsible for any accident produced by lack of knowledge or negligent practices at the moment of install, starting up or maintain this product. UPS manufacturer or distributor is not liable for any damage that might rise from misusing this unit or defective installation.

ELECTRIC SHOCK RISK



This product operates with dangerous voltages. It must be installed, operated and maintained **ONLY** by qualified technicians trained for this kind of products. Service personnel **MUST** know and understand very well all electric risks related to this product.

If you are not qualified technician do not try to install, operate or repair this product.

CAUTION: There are dangerous voltages in the UPS power outlets although the equipment is not plugged to power line.

CAUTION: Inside this equipment, due to internal batteries, there are **ALWAYS** dangerous voltages, **EVEN** the UPS is OFF and unplugged.

CAUTION: There are dangerous voltages in internal DC Capacitors. Wait at least 10 minutes after turning off UPS before opening it to access inside.

CAUTION: Power off UPS and unplugged it from AC Line before opening it to access inside this unit.

CAUTION: Before starting the opening procedure, remove all jewelry and metallic objects such as: Rings, Watches, Bracelets, etc., because they could contact conductive parts and components inside the UPS and this might cause discharges and/or short circuits. Make sure using tools properly isolated to avoid electrical risks.

WARNING: This product has been designed to be used indoors protected from water, direct sun light, dust and extreme temperature.

WARNING: Do not put any object on the UPS; do not apply any force over UPS. Do not cover UPS ventilation.

WARNING: This UPS must be connected to appropriate electrical service according to selected model. Technical specs label in the UPS shows the UPS power ratings. **DO NOT** connect this UPS to any of its own power outlets, this could damage the unit permanently.

WARNING: Do not connect AC motor based equipment without a careful sizing of the UPS based on inrush current instead of average current. Inrush current typical of motor based system could overload this UPS.

WARNING: In case of emergency, power-off UPS and turn it off by <OFF> button in front panel. Then call technical service.

INFORMATION FOR THE PROTECTION OF ENVIROMENT – UPS SERVICING

This UPS and batteries make use of components dangerous for the environment (electronic cards, electronic components). The components removed must be taken to specialized collection and disposal centers.

NOTICE TO EUROPEAN UNION CUSTOMERS: DISPOSAL OF OLD APPLIANCES



This product has been supplied from an environmentally aware manufacturer that complies with Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/CE. The “crossed-out wheeled bin” symbol at left is placed on this product to encourage you to recycle wherever possible. Please be environmentally responsible and recycle this product through your recycling facility at its end of life. Do not dispose of this product as unsorted municipal waste. Follow local municipal waste electrical and electronic equipment (WEEE).

2. PRODUCT DESCRIPTION

This is an Uninterruptible Power Supply (UPS) **ONLINE DOUBLE CONVERSION** with IGBT technology at rectifier and inverter stages with PWM modulation. It generates a pure **SINEWAVE** output free of noise and imperfections for powering and protecting your valuable system. This UPS is the right choice to protect hardware and data in critical workstations and server applications.

This product has been designed to operate under hostile electrical conditions but offering a reliable performance with outstanding features and characteristics. Optima RT9W is equipped with a powerful anti-surge system based on MOV technology. This model has filtering circuits for EMI interferences. It is 100% compatible to operate connected to low quality AC sources like power generators. Soft-start function allows connection to AC input source is done only when AC input values are confirmed inside operational ranges.

Our monitoring software allows configuring and controlling this UPS by any of available communications ports: USB/RS232 or LAN Ethernet optional card (under SNMP protocol).

OPTIMA RT9W series has 4 different models for supporting all kind of applications from 1KVA to 3KVA:

RT9W 1K: 1.000VA/900W	RT9W 2K: 2.000VA/1.800W	RT9W 3K: 3.000VA/2.700W
------------------------------	--------------------------------	--------------------------------

3. SAFETY, QUALITY AND PERFORMANCE STANDARDS

SAFETY - LOW VOLTAGE DIRECTIVE (2006/95/EC) UPS Part 1-1: General & Safety UPS in accessible areas	IEC/EN 62040-1
ELECTROMAGNETIC COMPATIBILITY - EMC DIRECTIVE (2004/108/EC)	
UPS, Part 2, Electromagnetic Compatibility:	IEC/EN 62040-2
Low Freq. Conducted Disturbances & Signals:	IEC/EN 61000-2-2
Electrostatic discharge immunity Test:	IEC/EN 61000-4-2 (Level 3)
Radiated radio Frequency immunity:	IEC/EN 61000-4-3 (Level 3)
Electrical Fast Transient / burst immunity:	IEC/EN 61000-4-4 (Level 4)
Surge immunity:	IEC/EN 61000-4-5 (Level 4)
Conducted Immunity:	IEC/EN 61000-4-6
Power frequency magnetic field immunity:	IEC/EN 61000-4-8
Voltage Dips, Short Interruptions & Voltage Variations Immunity:	IEC/EN 61000-4-11
PERFORMANCE: UPS Part 3: Methods of operation, specs and test requirement	IEC/EN 62040-3
IT Equipment. SAFETY. Part 1: General Requirements	IEC/EN 60950-1
BATTERY SAFETY	EN 50272
UL1778 (for UL models only)	UL1778 compliant (by cTUV-US)
IP PROTECTION	IP20 (static)
QUALITY MANAGEMENT:	Manufactured under: ISO 9001 : 2008
ENVIRONMENTAL MANAGEMENT:	Manufactured under: ISO 14001 : 2015
TRANSPORTATION:	IEC/EN 60068-2-32 (Drop Test) IEC/EN 60068-2-64 (Vibration Test) IEC/EN 60068-2-27 (Shock Test)

WARNING: Modifications made on the product or the use of this product as a part of a more complex system not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It also could affect its performance and the compliance of regulations. XMART is not responsible of modifications made after manufacturing.

WARNING: This is a category C2 UPS product. In a residential environment, this product may cause radio interference, in which case the user may be required to take additional measures (only for 220/230/240VAC systems).

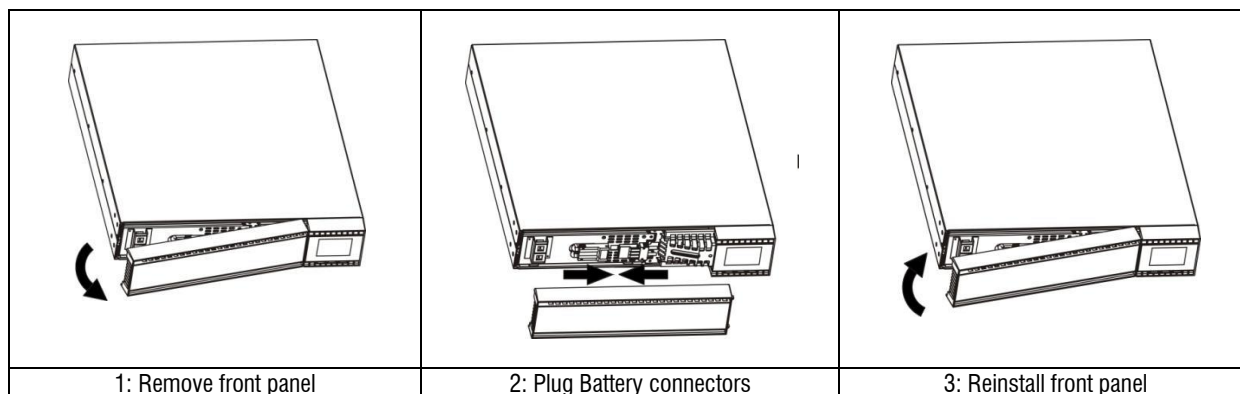
NOTE FOR 110/120 VAC SYSTEMS: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction 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.

4. INSTALLATION



INTERNAL BATTERIES MUST BE CONNECTED!!

UPS batteries are located inside UPS module but they come disconnected but reducing self-discharging. Before connecting this unit, internal batteries must be connected as indicated in below figure:.



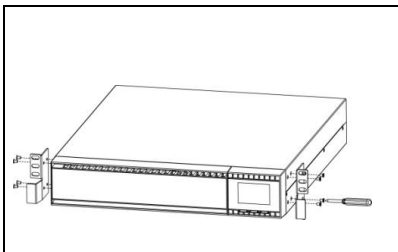
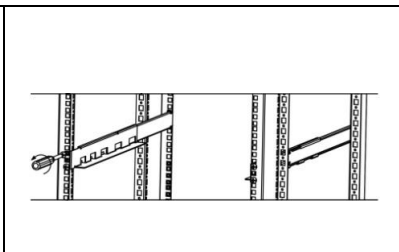
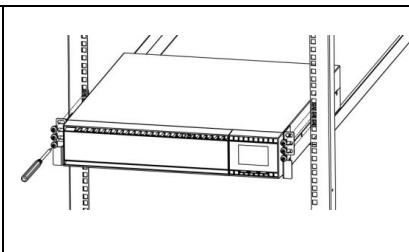
INSTALLATION

This UPS can be installed in both rack or vertical format.

19" RACK MOUNTING

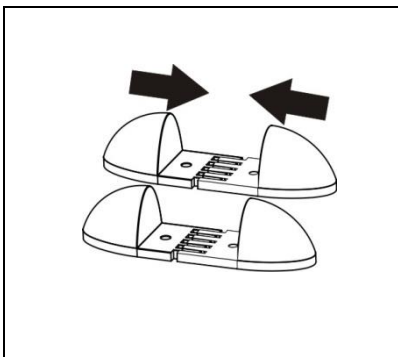
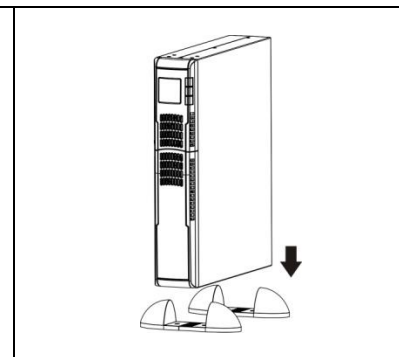
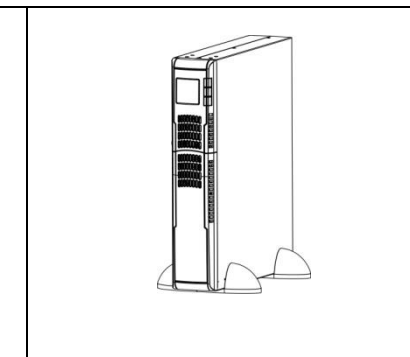
Rack UPS must be installed using L-Shape type guides for supporting UPS weight. Usually this kind of supports is provided with rack cabinets. If not, UPS distributor can provide original XSMART telescopic guides as optional accessory.

Small black handles included with the UPS are only for locking purposes. UPS cannot be supported only by these handles.

		
1: Install black handles to the UPS	2: Make sure rack cabinet counts with required mounting guides	3: Place UPS on the guides and fix it to the cabinet using black handles.

VERTICAL MOUNTING

UPS can also be mounted on vertical position by using plastic supports included inside the UPS box.

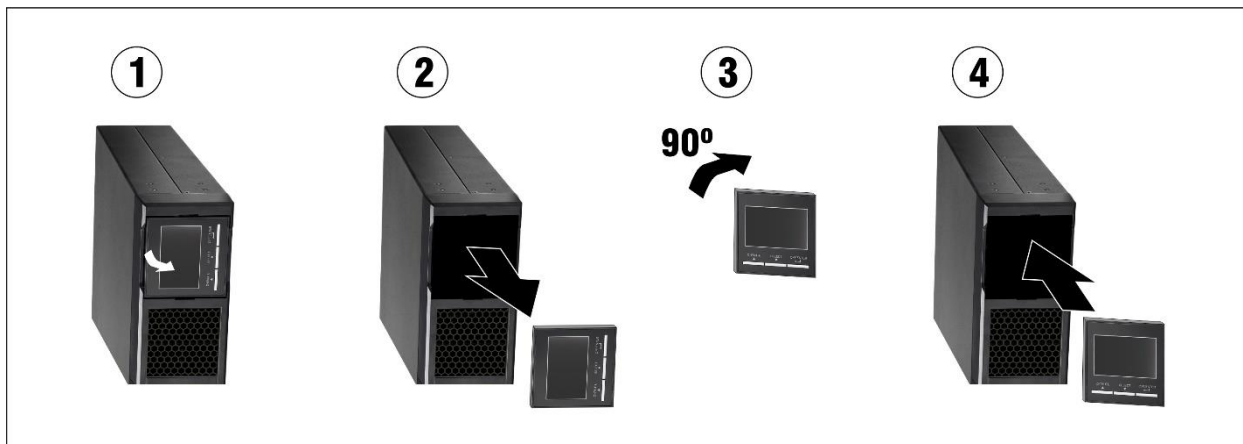
		
1: Assembly plastic supports	2: Place UPS inside support pieces	3: Make sure UPS is stable.

LCD ROTATION

UPS display can be rotated 90° for easy reading in both vertical and horizontal installations.

To rotate LCD follow next steps:

- 1- Unlatch LCD according to step 1
- 2- Separate LCD from the UPS frame
- 3- Rotate LCD as needed
- 4- Re-install LCD in the UPS. Double check LCD is latched on the UPS frame.



AC CONNECTIONS

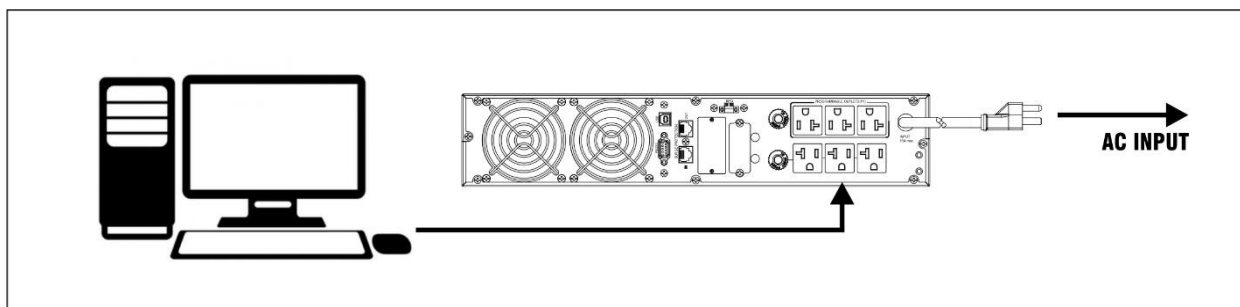
Install this UPS indoors with a conditioned temperature free of dust. The site conditions must comply with room specifications required in the specifications table of this manual.

Plug UPS input power-cord to the wall socket with rated voltage according to your UPS model.

Connect your products to UPS outlets without overloading UPS. Total power required to the UPS must be below maximum UPS capacity. We suggest to use this UPS below 75% of its maximum power.

Load products like laser printers, Xerox copiers or scanners requires high peak power that can overload this UPS. User must size UPS to maximum power required by load.

IMPORTANT: Do not connect loads based on AC motor or high inductive loads like transformers. This kind of loads can generate UPS error states.



Most of models come with input power-cord with a plug according to your country. However, some 3KVA models in 120V could be equipped with input terminal block. User must connect line, neutral and ground to input terminal block using cables with required gauge to drive maximum rated current. For 3KVA UPS in 120V, wires must be minimum 12AWG (for lengths shorter than 15m – 50 feet). Wiring gauge is conditioned to length, temperature, etc. Wiring must be selected by professional according to local electrical regulations.

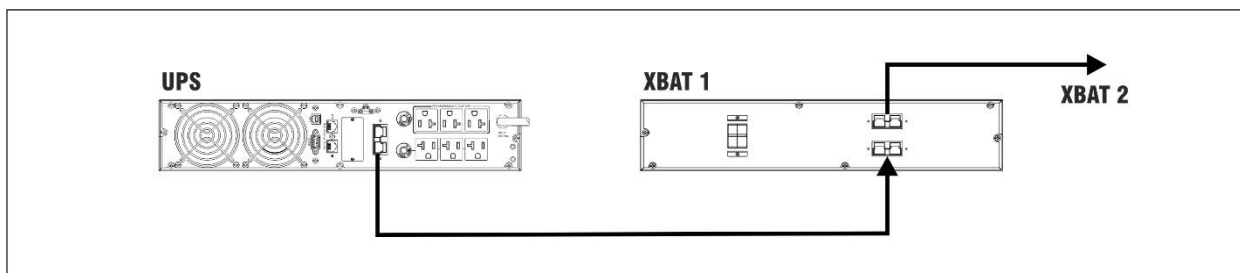
EXTERNAL BATTERIES (XBAT)

Additional external Battery modules can be connected to this UPS to have longer runtime. External batteries are optional for long run applications. XBAT must be connected by using original DC cables included inside XBAT box. XBAT must be connected to the DC connector located on rear panel of the UPS.

IMPORTANT: There could be OPTIMA RT9W models with different DC voltage that described on this manual. User must always double check the DC voltage printed on the rear panel of the UPS to confirm it marches with DC voltage provided by XBAT.

RT9W 1K: 24VDC	RT9W 2K: 48VDC	RT9W 3K: 72VDC
----------------	----------------	----------------

- 1) Place UPS module close to original XSMART XBAT modules.
- 2) Check all DC switches on XBAT are in OFF position.
- 3) Connect UPS to first XBAT module by using original DC cable
- 4) In case system has more than 1 XBAT, connect XBAT#1 to XBAT#2. Then XBAT# 2 to XBAT#3 and so on.



5. OPERATION MODES

This is a True On Line Double Conversion UPS and it is designed to offer clean, bump-less and highest quality power to your computer related equipment protecting also your valuable data. Power delivered by UPS is 100% sine wave as main line.

According to AC main service, and how UPS has been configured, it may operate in following modes:

ONLINE NORMAL Mode

When UPS is off by selecting ON push button in front panel UPS enters into ONLINE NORMAL mode if AC main service is inside acceptable input range. Under this mode UPS Inverter powers outputs and the energy is taken from DC voltage coming from AC/DC converter. Batteries are charged by AC Line if required.

BATTERY Mode (Also known Inverter Mode)

If under ONLINE NORMAL mode UPS detects a problem in AC input Line it enters in battery mode. Under this mode UPS takes energy from batteries to feed inverter that generates power for the output. There are no transfers neither micro-cuts on UPS output as inverter was already working. The only difference is that energy is now coming from batteries instead of rectifier output. Transfer time is actually Zero (0ms). UPS also can enter in battery mode when it is turned on without an acceptable AC input.

STATIC BYPASS (INTERNAL BYPASS):

This mode can be adopted if UPS configuration allows BYPASS mode and any of 3 below conditions is present: Under bypass mode, UPS AC output is feed from UPS AC input. When UPS is in bypass mode, in case AC input is interrupted, output will be interrupted also and UPS will power off. No battery mode can be adopted from bypass mode.

Bypass mode can be caused by any of below conditions:

- 1- Bypass mode is adopted, in case ON button has not been activated as soon as UPS detects a valid AC input on its terminals. (If bypass mode is not enable, UPS will simply light its LCD. Outputs will keep powered off)
- 2- Bypass mode is adopted as soon as a problem is detected in its internal circuitries.
- 3- Bypass mode is also activated in case an external overload is detected in UPS output. It happens when equipment connected to UPS output requires a power higher than max. power of the UPS

Additionally, this UPS can adopt under operator demand other operation modes as described:

FREQUENCY CONVERSION:

This UPS offers a very sophisticated function named frequency conversion (CF) that allows UPS to generate power output at determined frequency value (50Hz or 60Hz) no matter input frequency value. UPS will be able to generate output at 50Hz even input source is at 60Hz or generate 60Hz even if connected to 50Hz source.

This function can be configured and activated by LCD. Revise configuration section of this manual.

ECO:

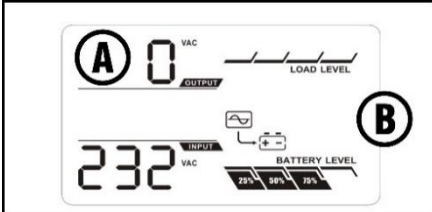
Under this mode, UPS powers outputs from the AC input. This is a kind of supervised BYPASS mode. As soon as AC input is out of acceptable input range for ECO mode (as defined on LCD configuration menus), UPS switch UPS from ECO to ONLINE mode or battery mode. Online mode is adopted if input range is acceptable for ONLINE mode. Switching from ECO to other mode takes about 4ms to 10ms. ECO mode must be activated on LCD according to configuration section of this manual.

IMPORTANT NOTES:

- 1.- Under CF mode, UPS will disable BYPASS mode. Since UPS has been configured to generate output with frequency value different to input frequency, BYPASS mode is disable to avoid a not acceptable frequency value at output.
- 2.- When CF function is activated, maximum power output is de-rated to 60% of maximum nominal capacity. For example, for a 3KVA (2.7KW) model, when CF is activated maximum output is decreased to 1.8KVA (1.6KW).

LCD SCREEN ACCORDING TO OPERATION MODE: (FOR 230VAC models)

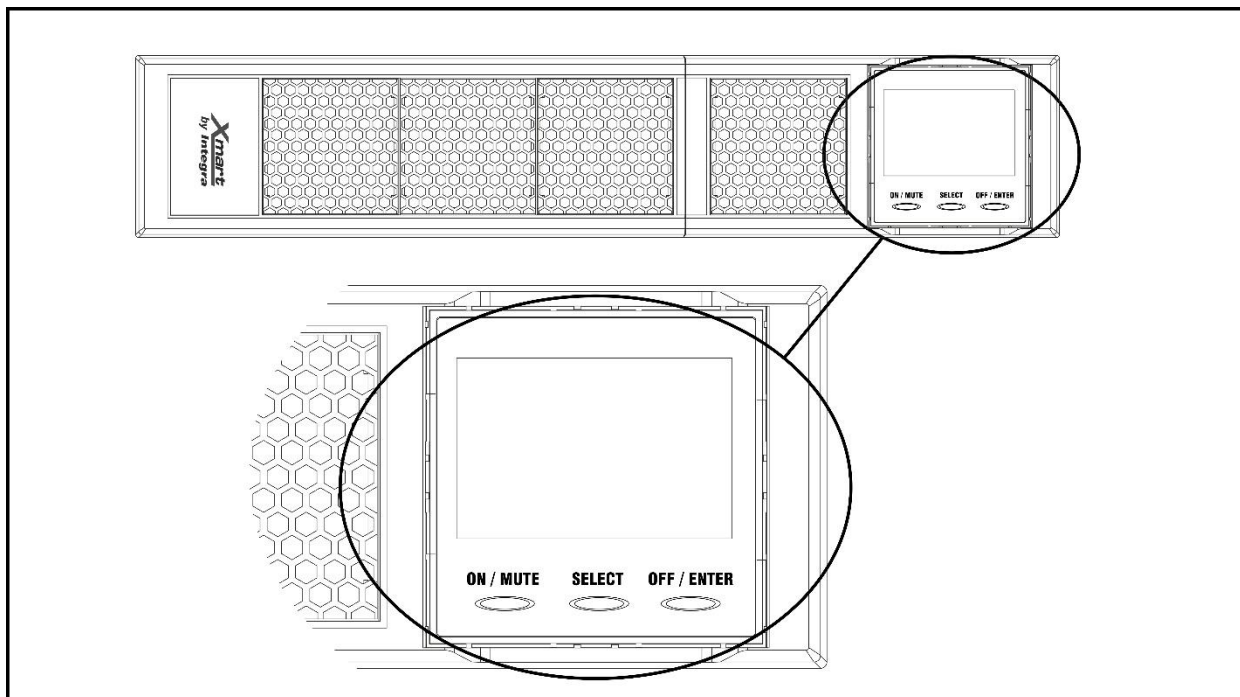
LCD screens for 120V models are similar to screens described in this section for 230V.

MODO DE OPERACIÓN	DESCRIPCIÓN	PANTALLA LCD
STANDBY	<p>A- When bypass is not allowed UPS output is powered-off (OV). It happens when UPS detects a valid input voltage but ON button has not been pressed.</p> <p>B- Flow chart indicates AC input is used to recharge batteries only.</p>	

ONLINE	<p>A – In online mode, Input voltage indicates a valid AC input close to (232VAC).</p> <p>B – Output voltage is displayed in upper left corner (B)</p> <p>C – Flowchart indicates AC input is used to recharge batteries but also feeds rectifier input. UPS output is generated by inverter.</p>	
BATTERY MODE	<p>A- Input indicator at bottom left corner (A) shows Battery voltage since there is no valid AC input detected.</p> <p>B- Output indicator displays AC output generated by UPS inverter.</p> <p>C- AC input symbol must be turned off representing there is no valid AC input detected by UPS.</p> <p>D- Clock symbol lights and backup time is displayed on the screen.</p>	
BYPASS MODE	<p>A- Input and output indicators must show a similar value since output is been feed by input through static internal bypass line.</p> <p>B- Flowchart shows static bypass line is active. Converters icon is turned off representing inverter is OFF.</p>	
ECO MODE	<p>A- ECO symbol is active on LCD</p> <p>B- Flowchart indicates output is powered from input.</p>	
FREQUENCY CONVERTER MODE	<p>A- FC CONVERTER symbol is activated to indicate FC conversion mode is active.</p>	
ERROR/FAILURE MODE	<p>A- When a failure is detected, UPS display error code with alert symbol on screen.</p>	

6. OPERATOR INTERFACE: KEYBOARD & LCD

FRONT PANEL:



<ON / MUTE>

UPS TURN-ON:	Keep it pushed for 2 seconds. If button is released before required time UPS will not turn on.
ALARM MUTE	Some no critical alarms can be muted when this key is selected
SELF TEST	Operator can manually initiate a self-test when UPS is ONLINE if this key is selected

<OFF / ENTER>

UPS TURN-OFF:	Press for 2 seconds to turn UPS off
ENTER:	When UPS is in configuration mode, this key operates as ENTER

<SELECT>

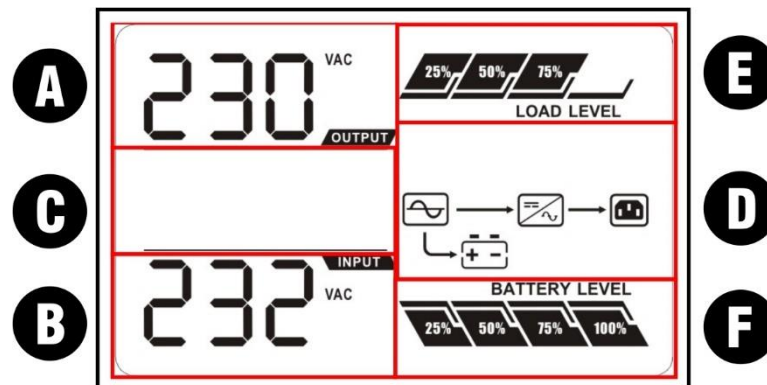
CHECK VALUES	UPS can show in alternative cycle all available values by pushing this button. Push again to skip to next value. LCD comes to normal state after 10 seconds.
CONFIGURATION MODE	By pressing for 5 seconds, UPS enters in configuration mode.

<ON / MUTE> + <SELECT>

BY-PASS MODE:	UPS will go from ONLINE to BYPASS mode when these 2 buttons are selected at same time for 3 seconds.
QUIT CONFIGURATION MENU	Operator can quit configuration mode by pressing for 2 seconds these 2 buttons at same time.

LCD DESCRIPTION

LCD can be divided in 6 functional areas:



OUTPUT INFORMATION:

It displays: AC Input voltage, DC Battery voltage, Input frequency (in Hz)



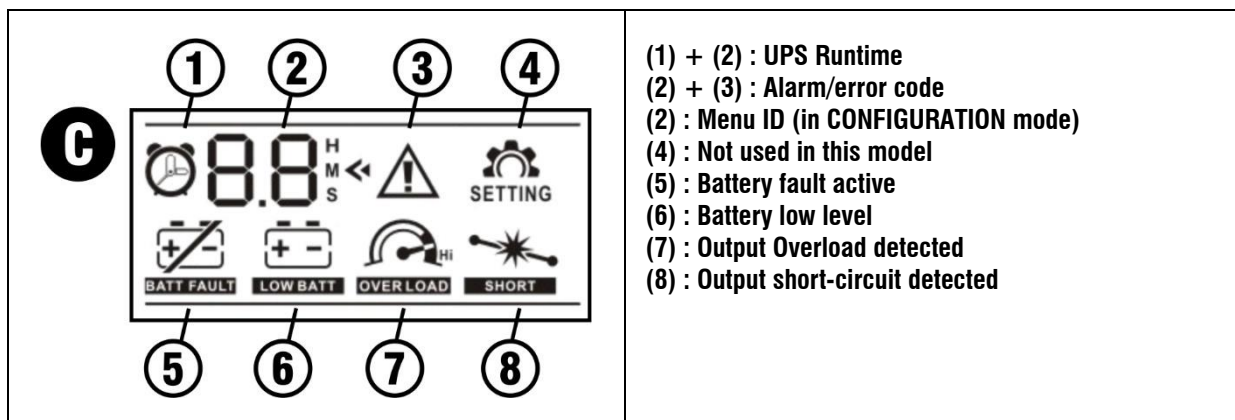
INPUT INFORMATION:

It displays: AC output voltage, Output frequency (in Hz)



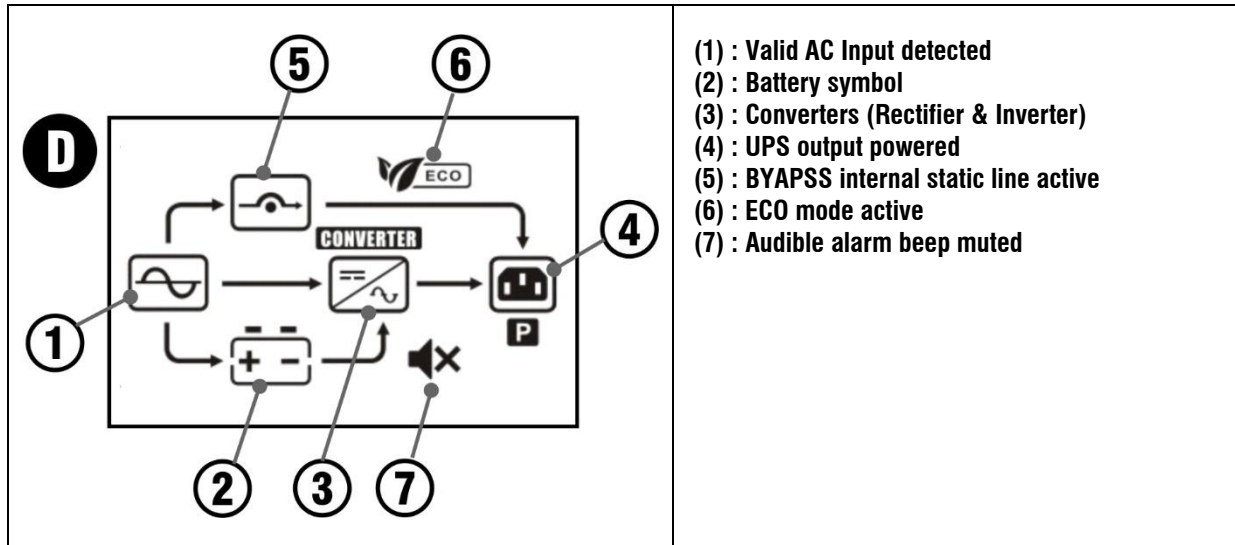
ALARMS & ERRORS

This section of the LCD displays active alarms and errors providing codes and descriptive symbols. This section also shows remaining runtime in battery mode.



FLOWCHART – UPS STATES & MODES

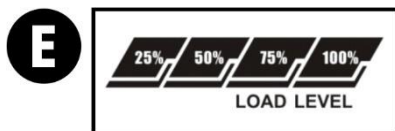
This section displays graphically operation mode and state of the UPS:



OUTPUT POWER METER

This area displays graphically by a 4 segments bar the power supplied by the UPS:

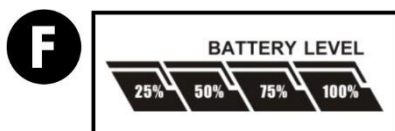
- 25%: Supplied Power is between 0 - 25%
 50%: Supplied Power is between 26 - 50%
 75%: Supplied Power is between 51 - 75%
 100%: Supplied Power is between 76 - 100%



BATTERY LEVEL METER

It shows by 4 segments bar the charge level of batteries:

- 25%: Between 0 - 25%
 50%: Between 26 - 50%
 75%: Between 51 - 75%
 100%: Between 76 - 100%



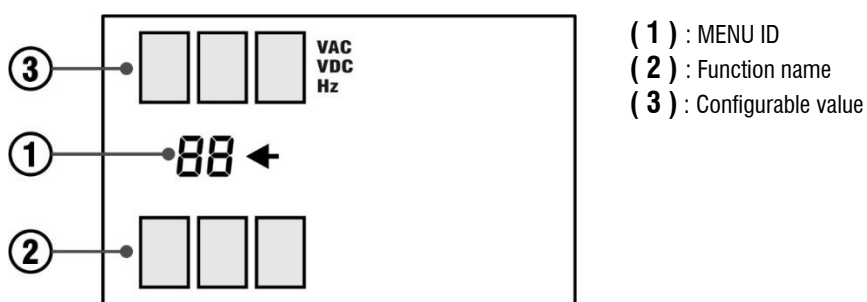
7. UPS CONFIGURATION

Configuration menu allows setting of functions and parameters of the UPS.

Menu is activated by pressing **< SELECT >** during 5 seconds with UPS in STAND-BY or BYPASS mode (powered but without activation of ON button).

To come back to normal state, ESC (00) screen can be selected to confirm with ENTER or simply user can wait 10 seconds to allow UPS to come back automatically.

In configuration mode, LCD displays ID of the menu and values of 2 adjustable parameters:



KEYBOARD IN CONFIGURATION MODE:

<ON / MUTE> Used as **↑** key to navigate or changing parameters value

<OFF / ENTER> Used as **<ENTER>** key to confirm modifications

<SELECT> Used as **↓** key to navigate or changing parameters value

CONFIGURATION MENU:

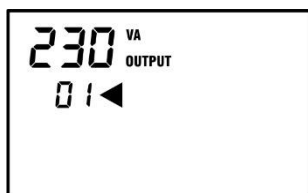
For this model, configuration menu has below options and functions:

00



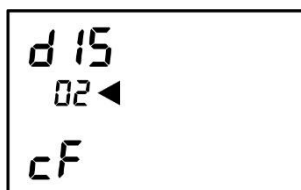
ESC:
To quit from configuration mode.

01



OUTPUT VOLTAGE:
- For 220V/230V models: Operator can select between: 208Vac / 220Vac / 230Vac / 240Vac. Factory set to: 230V
- For 120V models: Operator can select between: 110Vac / 115Vac / 120Vac / 127Vac. Factory set: 120V

02



CF: ENABLE / DISABLE FREQUENCY CONVERTER FUNCTION:

CF can be enable/disable by setting PAR. 03:

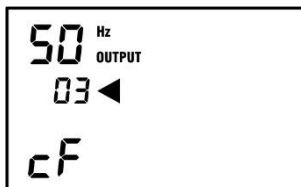
CF = Enable

NCF = Disable

If CF is enable PAR 02 must be set to preferred frequency value: 50Hz or 60Hz

This function allows UPS to generate output at selected frequency no matter value of input frequency

03



CF: FREQUENCY OUTPUT VALUE

- Initial frequency at Battery mode can be set:

BAT 50 = 50Hz

BAT 60 = 60Hz

- With CF mode activated, Output in ONLINE mode can be set as:

CF 50 = 50Hz

CF 60 = 60Hz

04



ECO ENABLE / DISABLE:

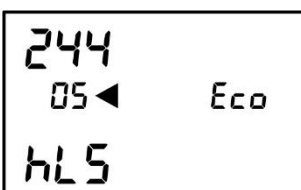
ENA : ENABLE

DIS : DISABLE

Factory set: DIS

Check more details at operation modes section.

05



ECO – INPUT VOLTAGE RANGE (Vac)

Function 02: High Limit

Function 03: Low Limit

Set values with keys: ↑ & ↓

06



BYPASS: ENABLE / DISABLE:

ENA : ENABLE

DIS : DISABLE

Factory set: DIS

07



BYPASS: INPUT VOLTAGE RANGE

- Valid input VOLTAGE range for bypass mode can be configured by setting high limit and low limit:

PAR 03: sets high limit (in Vac)

PAR 02: sets low limit (in Vac)

08



MAXIMUM RUNTIME FOR UPS GENERAL OUTPUTS:

0-999: Time in minutes for limiting runtime in battery mode for all outputs.

0 = Runtime time will be limited to 10 seconds

999 = Runtime limit disable. Runtime will depends on battery charging level.

Factory set: 999 min.

LCD CODES AND TEXTS:

TEXT	DESCRIPTION
BAT	Battery (Batería)
BR	Battery Replacement (Reemplazar Baterías)
CF	Frequency Converter Function (Función de Convertidor de Frecuencia)
CH	Charger (Cargador de Baterías)
ESC	Escape (Salir)
ON	ON (Encendido)
ENA	Enable (Habilitado)
DIS	Disable (Des-habilitado)
HLS	High Loss (Límite superior del rango)
LLS	Low Loss (Límite inferior del rango)
TP	Over Temperature in internal circuitries (Sobre temperatura interna)
FU	BYPASS Frequency unstable (Frecuencia en modo bypass inestable)
EE	EEPROM Error (Error de memoria EEPROM)



















8. ALARM & ERROR CODES

IMPORTANT: All alarms and errors are informed on the LCD by dedicated codes and symbols.

- **ALARMS:** Are usually represented by blinking codes or symbols. Audible alarm beeps are also intermittent for alarms. Alarm states do not avoid UPS works in ONLINE mode.
- **ERRORS:** Are usually represented by steady codes or symbols. Audible alarm for errors always sounds continuously. Error states force UPS to go to Static Internal BYPASS mode.





ALARMS

Alarms are generated when UPS detects an abnormal situation, but UPS can continue working in ONLINE mode. However, it is important operator revise condition that generated alarms and take actions to solve it. Alarms are represented by blinking symbols and codes with intermittent beeps.

ALARM	ALARM SYMBOLS	AUDIBLE BEEP
OVERLOAD detected at UPS output	 	2 beeps / s
LOW BATTERY	 	1 beep / s
BATTERY DISCONNECTED OR FAULTY	 	1 beep / s
BATTERY REPLACEMENT REQUIRED	 <i>br</i>	1 beep / s
BATTERY DISCONNECTED	 	1 beep / s
BATTERY OVER-VOLTAGE	 	1 beep / s
OVER TEMPERATURE	 <i>tp</i>	1 beep / s
BATTERY CHARGER FAILURE	 <i>ch</i>	1 beep / s
UPS IN BYPASS BUT INPUT VOLTAGE OUT OF RANGE	 	1 beep / s
UPS IN BYPASS BUT INPUT FREQUENCY OUT OF RANGE	 <i>FU</i>	1 beep / s
FAN FAILURE	 <i>FA</i>	1 beep / s
EEPROM MEMORY ERROR	 <i>EE</i>	1 beep / s

ERROR CODES

Error states are produced when UPS detects a critical problem that avoids its normal operation in ONLINE mode. This condition is described by steady symbol and code on LCD. A continuous beep is also generated by the UPS.

ERROR CONDITION	ERROR CODE	ERROR SYMBOL
DC BUS start failure	01	
DC BUS High	02	
DC BUS Low	03	
DC BUS Unbalanced	04	
INVERTER start failure	11	
INVERTER High voltage	12	
INVERTER Low voltage	13	
SHORT CIRCUIT detected at INVERTER output	14	
BATTERY voltage too HIGH	27	
BATTERY voltage too LOW	28	
OVER TEMPERATURE	41	
OVERLOAD: Detected at UPS output	43	
BATTERY CHARGER Failure	45	

AUDIBLE ALARM BEEPS

ERROR:	Continuous Beep
BATTERY MODE:	1 "Beep" / 5s
BYPASS MODE:	1 "Beep" / 10s. This alarm cannot be muted
LOW BATTERY:	1 "Beep" / 2s. This alarm cannot be muted

9. TROUBLESHOOTING

PROBLEMA	CAUSA PROBABLE & SOLUCION
Short runtime in Battery mode	Low Batteries Charge: Recharge Batteries during 4-6 h. Old Batteries: Batteries must be replaced by new ones
ALARMS	PROBABLE CAUSE & SOLUCION
Output Overload	High power consumption connected to UPS: Disconnect no critical equipment from UPS. If UPS is blocked by overload alarm, solve overload cause and unblock UPS as described in ALARMS section of this manual.
Battery failure	Batteries are disconnected or with a very low charging level: Revise batteries connection. Recharge batteries for 4-6 hours. If problem is not solved call technical service.
Batteries disconnected	Revise batteries connection.
Over Temperature	Check if fans are working properly. Check if room temperature is in acceptable range. Disconnect non-critical equipment from UPS to reduce internal temperature. If problem is not solved call technical support.
FAN Failure	Check if fans are working properly. If not call technical service.
EEPROM Failure	Turn-off and power-off UPS. Restart UPS. If not solved call technical service.
ERROR CODES	PROBABLE CAUSE & SOLUCION
01 , 02 , 03 , 04	Turn-off and power-off UPS. Disconnect all equipment connected to UPS. Restart UPS with no loads connected to its output. If UPS starts-up without problems, find faulty equipment and remove it from UPS. If problem is not solved call technical support.
11 , 12 , 13	Proceed as error 01
14	Short-circuit detected in the load connected to UPS. Turns UPS OFF. Identify faulty load and remove it from UPS output. Turns UPS on.
27	High voltage detected at batteries or problem in Battery charger. If batteries have been just replaced, check battery wiring. Check battery voltage matches with expected value for UPS model. If problem is not solved, call technical service.
28	Low voltage detected at batteries or problem in Battery charger. If batteries have been just replaced, check battery wiring. Check battery voltage matches with expected value for UPS model. If problem is not solved, call technical service.
41	Over-temperature in UPS. Turn UPS off and check if room temperature is below maximum limit. If room temperature is too high solve it before restarting UPS.
43	Overload detected at UPS output. Turn UPS off and remove non-critical loads to reduce power consumption. Restart UPS.
45	No output detected at battery charger. Call technical service.

10. SOFTWARE

Our monitoring software allows user to manage UPS and monitoring of all of its features.

Main software features are: Configuring UPS parameters, Automatic shutdown for protected PCs (OS and files) when long blackouts force UPS to power-off, Scheduled battery tests, shutdown and start-up and Easy interface for monitoring UPS and Main service.

CD software is usually included inside the box. For some models, software can be downloaded from our website. Software manual can be downloaded from our website also.

11. BATTERIES: CARE AND MAINTENANCE

To have a longer Battery life, it is recommended to apply a deep discharge to batteries every 3 months. It is also recommendable to operate UPS with a room temperature below 25°C. Operating UPS with higher room temperatures will short dramatically battery life.

IMPORTANT: RECHARGING PLAN FOR LONG STORAGE

If UPS will be stored for long time, it is mandatory to recharge UPS periodically. If UPS is not recharged according to this plan, batteries will get permanent damage. This kind of damage is not covered by warranty.

Recharging plan is conditioned to storage temperature:

STORAGE TEMPERATURE: - 25°C a + 30°C : RECHARGE EVERY 4 MONTHS / RECHARGE DURING 6 HOURS

STORAGE TEMPERATURE: + 30°C a + 45°C : RECHARGE EVERY 2 MONTHS / RECHARGE DURING 6 HOURS

12. BATTERIES REPLACEMENT

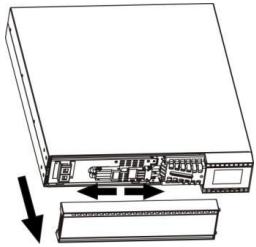
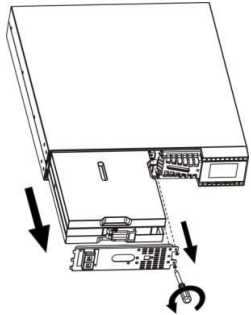
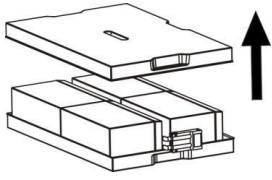
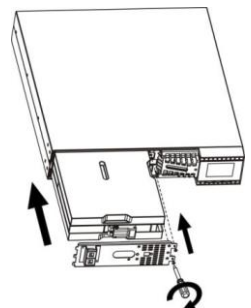
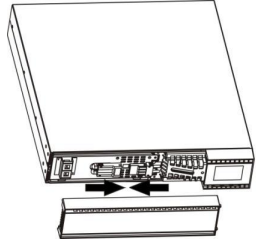
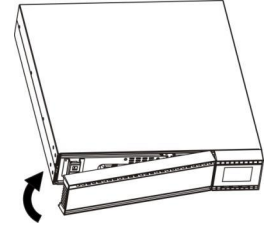
This UPS series allows an easy and safety battery pack replacement as described below.

IMPORTANT:

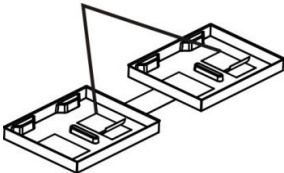
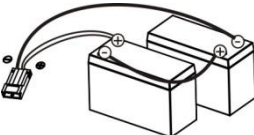
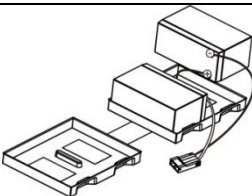
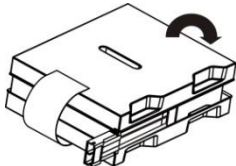
Batteries must be disposed according to your country regulations.

Do not dispose batteries in fire as they might explode

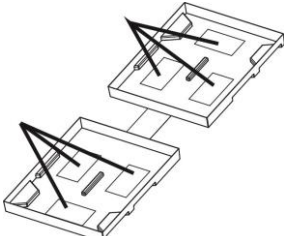
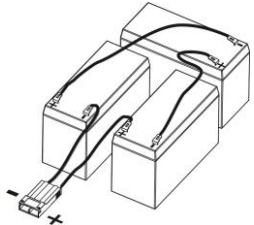
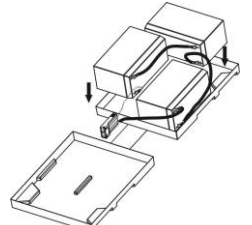
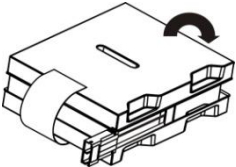
Do not try to open batteries, there are dangerous liquids inside.

1: Remove front panel & disconnect batteries 	2: Remove Battery pack 	3: Replace old batteries by new batteries (same technology, voltage and capacity). 
4: Insert Battery pack 	5: Connect Battery pack to UPS 	6: Install front panel. 

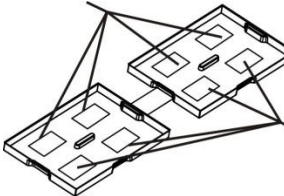
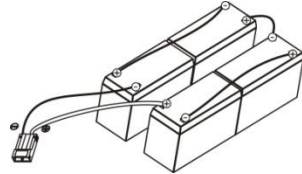
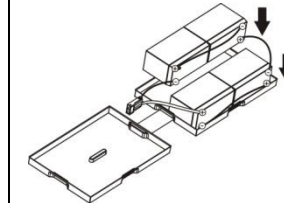
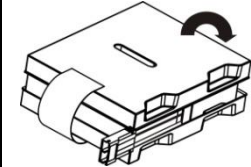
BATTERY REPLACEMENT: 2 BATTERIES, 24VDC MODELS (1KVA)

1: Remove old batteries	2: Connect 2 batteries in series	3: Install new batteries in the binder	4: Close binder
			

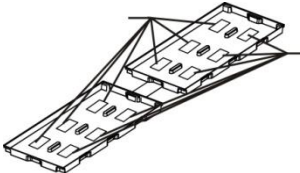
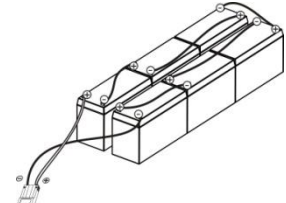
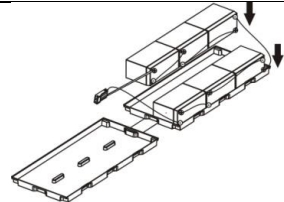
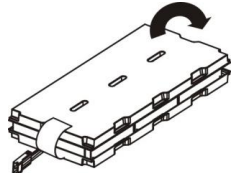
BATTERY REPLACEMENT: 3 BATTERIES, 36VDC MODELS (1.5KVA)

1: Remove old batteries	2: Connect 2 batteries in series	3: Install new batteries in the binder	4: Close binder
			

BATTERY REPLACEMENT: 4 BATTERIES, 48VDC MODELS (2KVA)

1: Remove old batteries	2: Connect 2 batteries in series	3: Install new batteries in the binder	4: Close binder
			

BATTERY REPLACEMENT: 6 BATTERIES, 72VDC MODELS (3KVA)

1: Remove old batteries	2: Connect 2 batteries in series	3: Install new batteries in the binder	4: Close binder
			

13. SUPPORT & WARRANTY

Support: If a failure or problem is detected please check troubleshooting section in user manual. If problem cannot be solved, please contact authorized service center or authorized dealer.

Batteries: Rechargeable batteries can be charged and discharged hundreds of times. However, they will eventually wear out. This is not a defect or failure so that batteries wear out is not covered by this warranty.

Battery lifetime will depend of operative conditions like working temperature, type and frequency of discharging cycles. Higher the temperature shorter will be the lifetime. Frequent and deep discharging cycles also will short lifetime. For critical applications batteries should be revised and replaced periodically. Long storage (longer than 6 months) without required recharging will wear out batteries. This situation is not covered by this limited warranty since this is not considered as a defect. Check recharging instructions on user manual.

Conditions - Limited Warranty

1.- Subject to the conditions of this limited warranty, this product is warranted to be free from defects in materials and workmanship at the time of XMART supplies the product.

- In Europe, warranty time is 2 years on electronic parts and 2 years on internal batteries from XMART invoice date.
- In America, standard warranty times could vary depending on country/region or can be extended by purchasing warranty options. Please check warranty plans and extensions with your local distributor.

2.- If during the warranty period, this product fails to operate under normal use and service, due to defects in materials or workmanship, authorized distributor or service center will, at their option, either repair or replace the product in accordance with terms and conditions stipulated herein. Transportation expenses are not covered by this limited warranty.

3.- Warranty is valid only if the original purchasing document, specifying date of purchase, serial number and name of the dealer, is presented with the product to be revised. XMART and authorized partners reserve the right to refuse warranty service if any of this information has been removed, changed or missing in original invoice document.

4.- If product is repaired or replaced, repaired or replaced product will be warranted for the remaining time of the original warranty or for 90 days on repaired part from date of repair, whichever is longer.

5.- XMART or their distribution/service partners reserve the right to charge handling fee if returned product is free of failure or it is out of warranty because any of the reasons described in this warranty.

6.- If product is out of warranty a reparation proposal will be sent to the user for his approval. If proposal is not accepted, service center will keep product available for the user during 60 continuous days. After this period product would be disposed and user will not be able to rise any claim.

7.- Rechargeable batteries, like included in this product, will definitively wear out even under normal operation. This is not a defect or failure so it is not covered by this warranty.

8.- This warranty does not cover batteries wear out caused by improper or long storage (over 6 months without required recharging as indicated in product manual). Even performing recharging procedure this product cannot be storage longer than 18 months. Problems on batteries caused by this kind of long storage are not covered by this warranty.

9.- This warranty does not cover product failures caused by installations, modifications or repair performed by non-authorized person. If product is open by not authorized technician warranty will be considered void. This warranty does not cover failure caused by inadequate installation or maintenance, misuse, accidents, fire or floods.

10.- This product can include protection devices like input fuse or input breaker. Activation of this kind of devices is not a failure it is caused by an improper product installation. Input fuse or breaker reset, or replacement is not covered by this warranty.

11.- This warranty does not cover damages produced during transportation from user to technical service caused by improper packing of the product by user.

12.- Warranty terms and conditions cannot be modified or extended by third parties without written approval of XMART.

Limited Warranty

- XMART does not warrant that the operation of this product will be uninterrupted or error-free during its lifetime. If product fails to work, the maximum liability of XMART under this limited warranty is expressly limited to the lesser of the price you have paid for the product or the cost of repairing or replacement of any hardware components that malfunction in conditions of normal use.

- In no event will XMART be liable for any damages caused by the product or the failure of the product to perform, including any lost profits or savings or special, incidental, or consequential damages. XMART is not liable for any claim made by a third party to XMART or to final user.

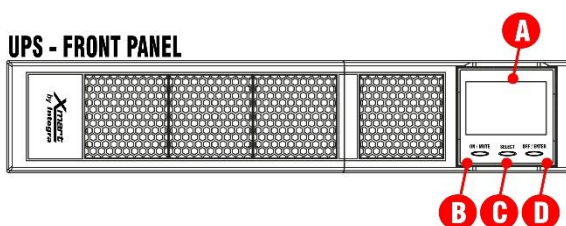
- XMART is not responsible for damage that occurs as a result of your failure to follow the instructions intended for this hardware product.

14. FRONT & REAR PANEL

- | | |
|---|--|
| A.- LCD | 4.- AC Input breaker/fuse |
| B.- ON/MUTE | 5.- RJ45 surge protected sockets (in/Out) |
| C.- SELECT | 6.- Not used |
| D.- OFF/ENTER | 7.- USB & RS232 ports |
| 1.- Standard UPS outlets | 8.- Intelligent SNMP port |
| 2.- IEC-C20 outlet 16A (IEC model only) | 9.- External Battery connector (optional in some models) |
| 3.- AC input | 10.- DC Breaker in External Battery Module (XBAT) |

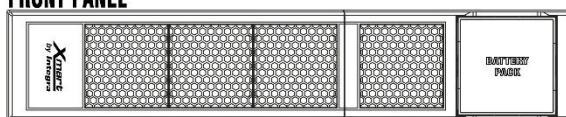
UPS / SAI

UPS - FRONT PANEL

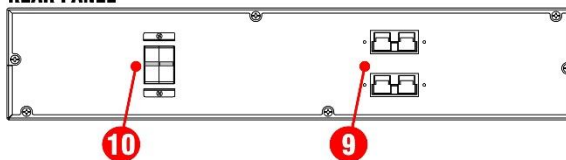


EXTERNAL BATT PACK

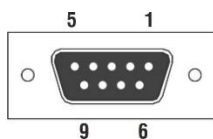
FRONT PANEL



REAR PANEL



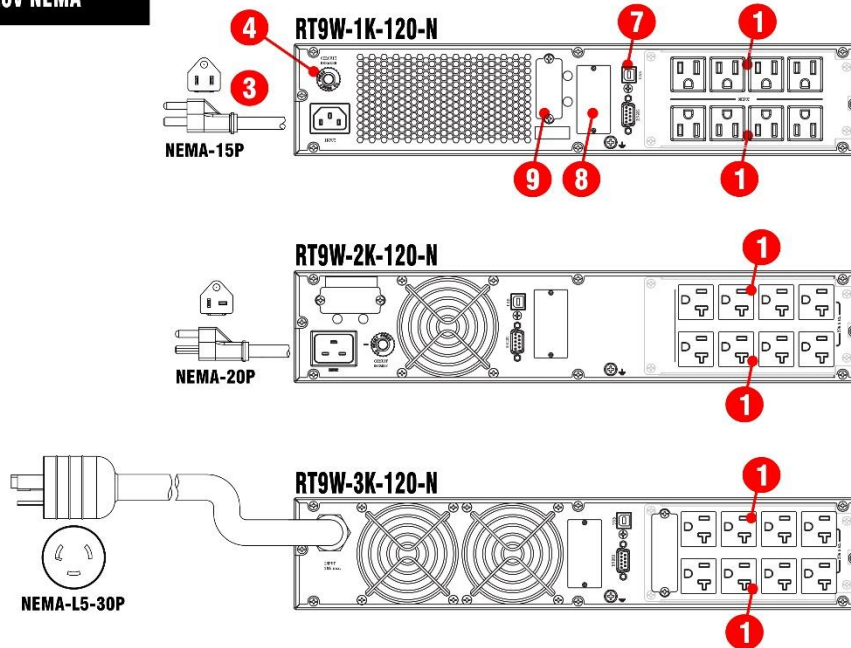
RS232 COMMUNICATION PORT



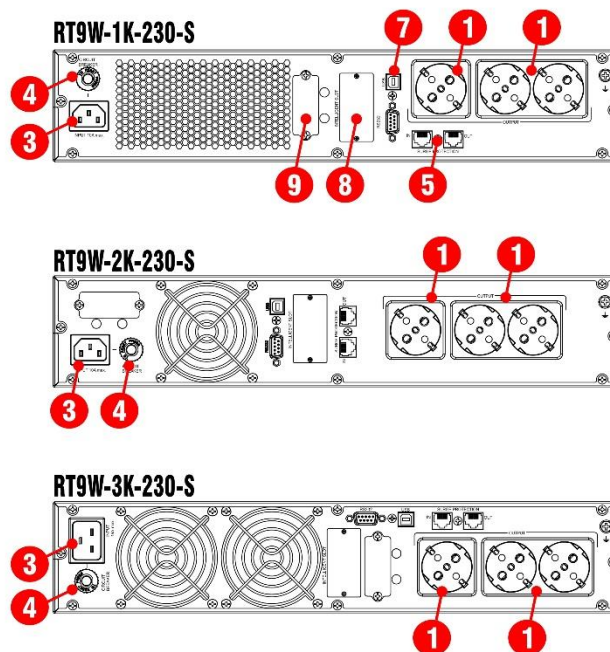
Serial communication port – Pinout:

Pin 2: RX
Pin 3: TX
Pin 5: GND

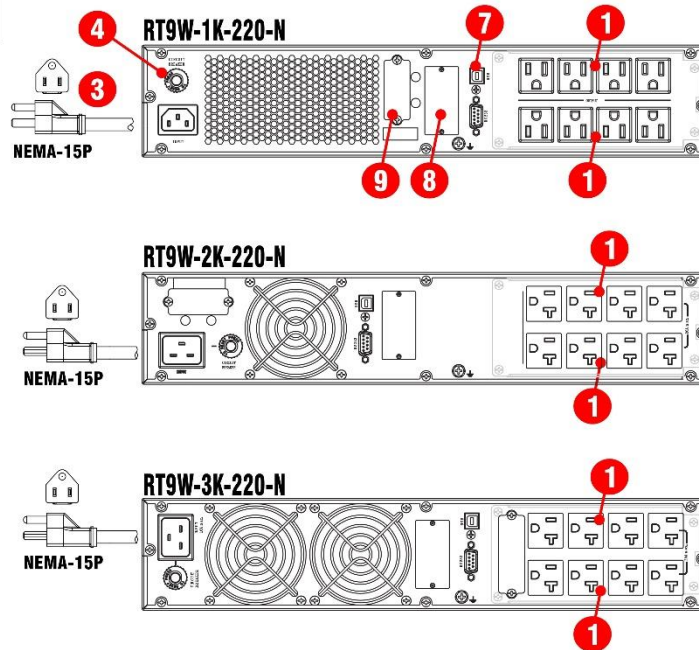
RT9W 120V NEMA



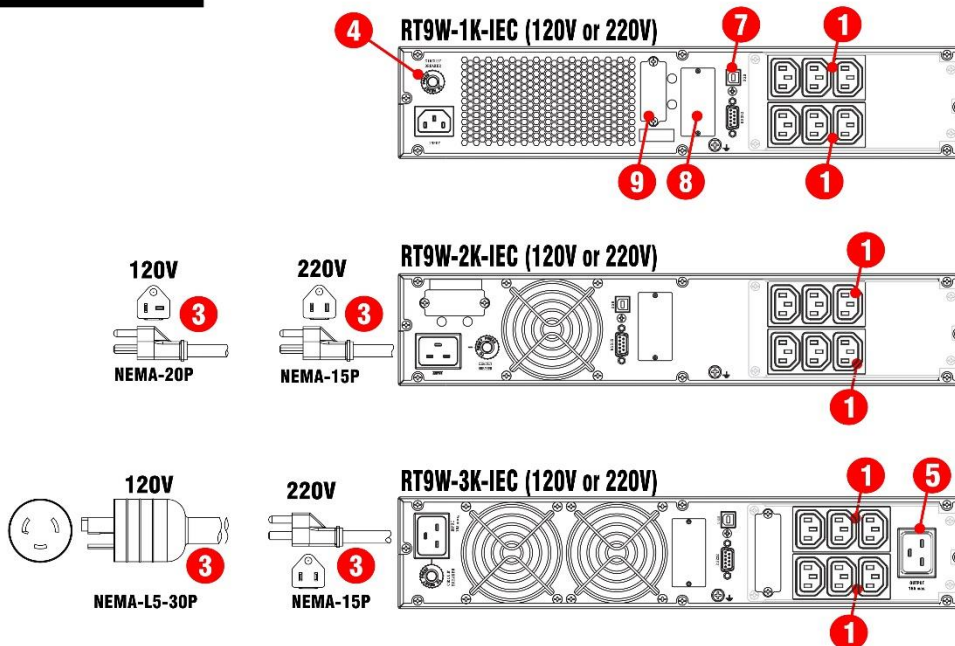
RT9W 230V SCHUKO



RT9W 220V NEMA



RT9W 120V & 220V IEC



15. SPECIFICATIONS (1/2)

ONLINE RT9W UPS	1K	2K	3K
Capacity / Capacidad	1.000VA / 900W	2.000VA / 1.800W	3.000VA / 2.700W
INPUT / ENTRADA			
Range / Rango - Vac (Model 120Vac)	90Vac-145Vac @ 100% load / 60Vac-145Vac @ 60% load		
Range / Rango - Vac (Model 220Vac)	180Vac-300Vac @ 100% load / 120Vac-300Vac @ 60% load		
Frequency Input / Frecuencia de Entrada:	50Hz / 60Hz autosensing / detección automática		
Frequency Range / Rango de Frecuencia	40 Hz - 70Hz		
Max. Current / Corriente Max. (Model 120Vac)	11.9 (RMS)	23.6 (RMS)	35.0 (RMS)
Max. Current / Corriente Max. (Model 220Vac)	6.0 (RMS)	11.8 (RMS)	17.5 (RMS)
Phase / Fases	Single phase with ground / (1 fase + Tierra)		
Power Factor / Factor de Potencia	> 0.99 @ 100% load		
Input Current THDi / THDi de Corriente de Entrada	< 7% @ 100% load		
OUTPUT / SALIDA			
Voltage Output / Voltaje de Salida AC:	(*N1) Model 120V: 110/115/120/127Vac - Model 220V: 208/220/230/240Vac		
Output Regulation / Rango de Salida:	+/-1%		
Frequency / Frecuencia (Batt. Mode)	(*N3) 50 Hz +/- 0.5 Hz - 60Hz +/- 0.5 Hz		
Slew Rate / Seguimiento de Frecuencia	1 Hz / s		
Current Crest Ratio / Factor de Cresta	3:1 max. @ 100% load		
Harmonic Distortion / Dist. Armónica (THDv)	< 3% @ Linear Load / Carga Lineal / <6% @ No Linear Load / Carga no Lineal		
Dynamic Accuracy / Regulación Carga Variable	< +/- 5% Online (variation 0%-100% & 100%-0% R Load)		
AC to Inverter / Tiempo de AC a Inversor	0 ms		
Waveform / Forma de Onda	Pure Sinewave / Sinusoidal Pura		
DC component / Componente DC	100mV max.		
BYPASS			
Internal Auto bypass / Modo Bypass Automático:	Default Input Range in BYPASS: (120V): 90-132Vac / (220V): 180-264Vac		
PROTECTION SYSTEMS / SISTEMAS DE PROTECCION			
Surge & Spikes Suppression / Supresión de Picos	(L-N, L-G, N-G) : MODEL 120V: > 850Joules / MODEL 220V: > 1.250Joules		
RJ45 Surge Protection / Supresión en RJ45	RJ45 IN/OUT (model: 230V)		
Output Short-Circuits / Cortocircuitos a la Salida (Online & Battery Mode)	Electronic inverter shortcircuit protection / Protección contra cortocircuitos en la salida		
AC Input Current / Sobre-Corriente de Entrada AC	Input breaker or fuse / Disyuntor o fusible de entrada		
Battery overcurrent / Sobrecorriente de baterías	Internal Fuse protection in battery line / Protección por fusibles en línea de baterías interna		
Starting Time / Tiempo de Arranque (@ 100% load)	7s - 10s		
EFFICIENCY / EFICIENCIA			
Eco Mode	(100% LOAD: 97%) - (75% LOAD: 96%) - (50% LOAD: 96%) - (25% LOAD: 94%)		
AC Mode / Modo AC	(100% LOAD: 91%) - (75% LOAD: 90%) - (50% LOAD: 90%) - (25% LOAD: 88%)		
Battery Mode / Modo Batería	(100% LOAD: 90%) - (75% LOAD: 90%) - (50% LOAD: 90%) - (25% LOAD: 88%)		
Inverter Efficiency / Eficiencia Inversor (100%)	(100% LOAD: 97%)		
Internal Loss / Consumo Interno (BTU) @ 100% load	276	491	737
OVERLOAD/ SOBRECARGA			
AC Mode / Modo Normal	100%~105%: (warning) / 105%~110%: 10min to bypass / 110%~130%: 1min to bypass		
Battery Mode / Modo Batería	100%~105%: (warning) / 105%~110%: 10min to bypass / 110%~130%: 1min to bypass		
Bypass Mode / Modo Bypass	110%~120%: 30min to OFF / 120%~130%: 10min to OFF / LOAD > 130%: 1min to OFF		
BATTERIES / BATERIAS			
Technology / Tecnología	YUASA or CSB: Sealed Lead Acid VRLA-AGM / Sellada Sin Mantenimiento VRLA-AGM		
Qty&Type / Cantidad&Tipo	2 x 12V-9AH	4 x 12V-9AH	6 x 12V-9AH
Charging VDC / Voltaje del cargador (Floating)	27.4 VDC +/- 1%	54.7 VDC +/-1%	82.1 VDC +/-1%
Typical Recharge Time / T. de Recarga	4 Hours for 90% capacity / 4 Horas para recuperar el 90% de carga		
Shutdown battery Voltage / Voltaje DC Apagado	10.0 Vdc per battery typical (*N4)		
Charging Amps / Corriente de Carga	1.5 A (Max.)		

15. SPECIFICATIONS (2/2)

ONLINE RT9W UPS	1K	2K	3K
INDICATORS / INDICADORES			
LCD / Pantalla de Cristal Liquido (LCD)	UPS status, Load level, Battery, Input/Output voltage, Discharge timer, and Fault Estado del UPS, Consumo, Baterías, Voltaje Entrada/Salida, Autonomía, Diagnostico		
ALARM / ALARMAS			
Beep Alarms / Alarma Sonora:	(Batt. Mode: 1 beep/4s)-(Low batt.: 1 beep/s)-(Overload: 2 beep/s)-(Failure: Continuous)		
OUTLETS: QTY & TYPE / SALIDAS: CANTIDAD Y TIPO			
UPS Model 230Vac - Total Outlets	CEE*(Schuko)*3	CEE*(Schuko)*3	CEE*(Schuko)*3
UPS Model 120Vac - Total Outlets	NEMA5-15R*8	NEMA5-15R*8	NEMA5-20R*8
UPS Model 220Vac NEMA - Total Outlets	NEMA5-15R*8	NEMA5-15R*8	NEMA5-20R*8
Input/ Entrada (230Vac)	CEE 7/7 hybrid	CEE 7/7 hybrid	CEE 7/7 hybrid
Input/ Entrada (120Vac)	NEMA5-15P	NEMA5-20P	L5-30P
Input/ Entrada (220V NEMA)	NEMA5-15P	NEMA5-20P	NEMA5-20P
PHYSICAL / FISICAS: UPS			
W*H*D / Ancho * Altura * Profundidad (mm)	438*88*310 [2U]	438*88*410 [2U]	438*88*630 [2U]
Net Weight/ Peso Neto (kgs)	12	20	28
PHYSICAL / FISICAS: External Battery Pack / Paquete de Baterías Externas			
W*H*D / Ancho*Altura*Profundidad (mm)	438*88*410 [2U]	438*88*630 [2U]	438*88*630 [2U]
Net Weight/ Peso Neto (kgs)	28	33	43
UPS PACKING / EMPAQUE UPS			
Unit Carton W*H*D (mm)	400*200*500	500*200*560	600*240*760
Unit Gross Weight/ Peso Bruto (kgs)	14	22	30
Half Pallet / Medio Pallet (cm : pcs)	(120*100*105): (30pcs)	(120*100*108): 20pcs	(120*80*96): 8pcs
Full Pallet / Pallet Completo (cm : pcs)	2 half pallets (60pcs)	2 half pallets (40pcs)	(120*80*171): 14pcs
Container: (FCL20' 7 FCL40')	600pcs / 1260pcs	400pcs / 840pcs	154pcs / 336pcs
EXT BATT PACKING / EMPAQUE BATERIAS EXTERNAS			
Unit Carton W*H*D (mm)	500*180*560	600*200*760	600*200*760
Gross Weight/ Peso Bruto (kgs)	30	35	45
OPERATIONAL CONDITIONS / CONDICIONES DE OPERACIÓN			
All models / Todos los modelos	< 95 % RH (non-condensing / no condensante) / 0 - 40 °C / <50dBA @ 1m		
Max. Altitude / Altura de Operación Max.	Max. 4.500 meters over sea level / sobre nivel del mar. * Power output de-rate of 1% every 100m (over 1.000m) * Disminución de potencia de 1% cada 100m (sobre los 1.000m)		
COMMUNICATION / COMUNICACION			
Smart RS-232 & USB	Windows family; Linux; Unix; Mac OS; VMWare.		
SNMP Intelligent Port:	LAN Card, Dry-Contacts card, RS485 (Optional / Opcional)		
Technical specifications can be modified to comply with special requirements / Las especificaciones pueden bajo requerimiento adaptarse a proyectos especiales			
Technical specifications may change without further notice / Por motivos comerciales o técnicos las especificaciones pueden cambiar sin previo aviso.			
Output voltage is selectable by LCD / El Voltaje de salida es configurable entre 4 alternativas seleccionables en el LCD			
Allows to set output frequency at constant value: 50Hz or 60Hz / El modo de Conversión de Frecuencia permite fijar la salida a 50 o 60Hz			
(*N4) Shutdown battery voltage depends of operating conditions (load and runtime) / Voltaje de corte de baterías depende de condiciones de operación (carga y runtime)			
** Derate Watts capacity to 70% in frequency converter mode. Derate to 80% when output voltage is set to 200/208Vac or 100/110Vac			
** La capacidad en Watts se degrada y baja hasta el 70% en modo Convertidor de Frecuencia. También baja al 70% si se ajusta la salida a 200Vac ó 100Vac			
** Runtime for loads >80% is limited to 4min. For loads between 70% and 80% runtime is limited to 10min. For loads below 70% runtime depends on battery level / El respaldo para cargas >80% está limitado a 4min. Para cargas entre 70% y 80% el límite es 10min. Por debajo del 70% la autonomía no está limitada			

This image shows a single page from a notebook or ledger. It features a series of evenly spaced horizontal black lines across its entire width, providing a template for writing. There are no vertical margin lines, headers, footers, or other markings present on the page. The background is a solid off-white color.

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