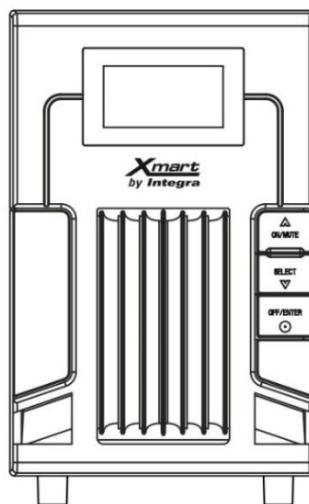
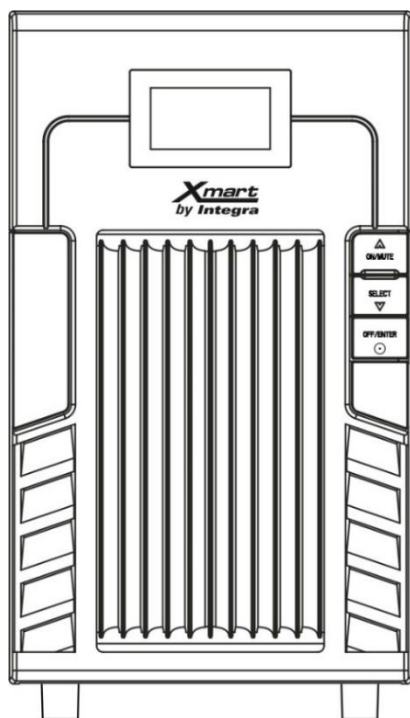


## **USER MANUAL OPTIMA T09 1K/1.5K/2K/3K**

### **UPS ONLINE DOUBLE CONVERSION TOWER INSTALLATION**

**230V SCHUKO  
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. SAFETY, QUALITY AND PERFORMANCE STANDARDS

<b>SAFETY - LOW VOLTAGE DIRECTIVE (2006/95/EC)</b>	<b>IEC/EN 62040-1</b>
<b>UPS Part 1-1: General &amp; Safety UPS in accessible areas</b>	
<b>ELECTROMAGNETIC COMPATIBILITY - EMC DIRECTIVE (2004/108/EC)</b>	
<b>UPS, Part 2, Electromagnetic Compatibility:</b>	<b>IEC/EN 62040-2</b>
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
<b>PERFORMANCE: UPS Part 3: Methods of operation, specs and test requirement</b>	<b>IEC/EN 62040-3</b>
<b>IT Equipment. SAFETY. Part 1: General Requirements</b>	<b>IEC/EN 60950-1</b>
<b>BATTERY SAFETY</b>	<b>EN 50272</b>
<b>UL1778 (for UL models only)</b>	<b>UL1778 compliant (by cTUV-US)</b>
<b>IP PROTECTION</b>	<b>IP20 (static)</b>
<b>QUALITY MANAGEMENT:</b>	Manufactured under: <b>ISO 9001 : 2008</b>
<b>ENVIRONMENTAL MANAGEMENT:</b>	Manufactured under: <b>ISO 14001 : 2015</b>
<b>TRANSPORTATION:</b>	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.

## 3. 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 T09 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 T09 series has 4 different models for supporting all kind of applications from 1KVA to 3KVA:**

<b>T09 1K: 1.000VA/900W</b>	<b>T09 1.5K: 1.500VA/1.350W</b>	<b>T09 2K: 2.000VA/1.800W</b>	<b>T09 3K: 3.000VA/2.700W</b>
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## 4. INSTALLATION

### **AC CONNECTIONS**

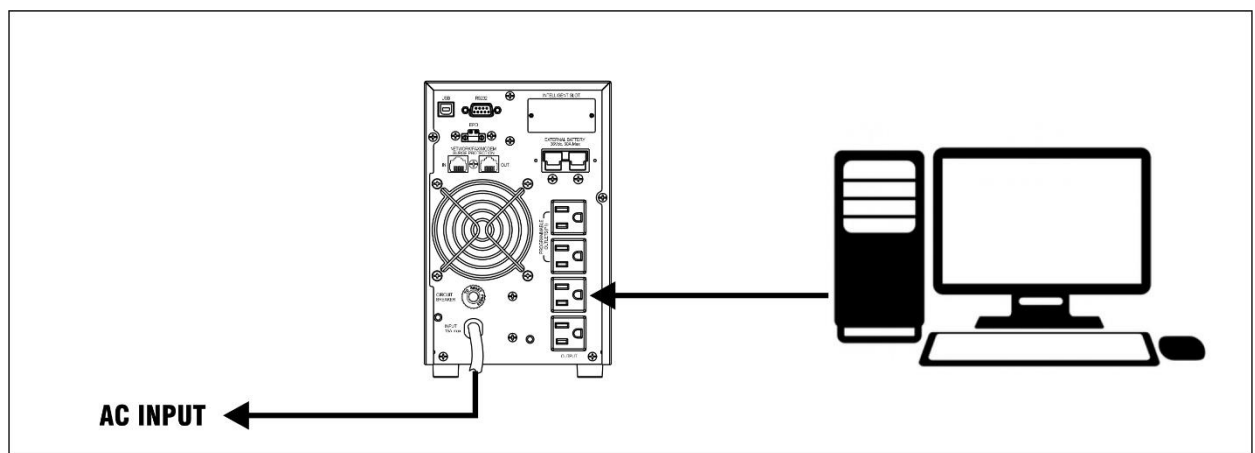
Install this UPS indoors with a conditioned temperature free of dust. The site conditions must comply with room specifications required in the specifications table of this manual.

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 big 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)**

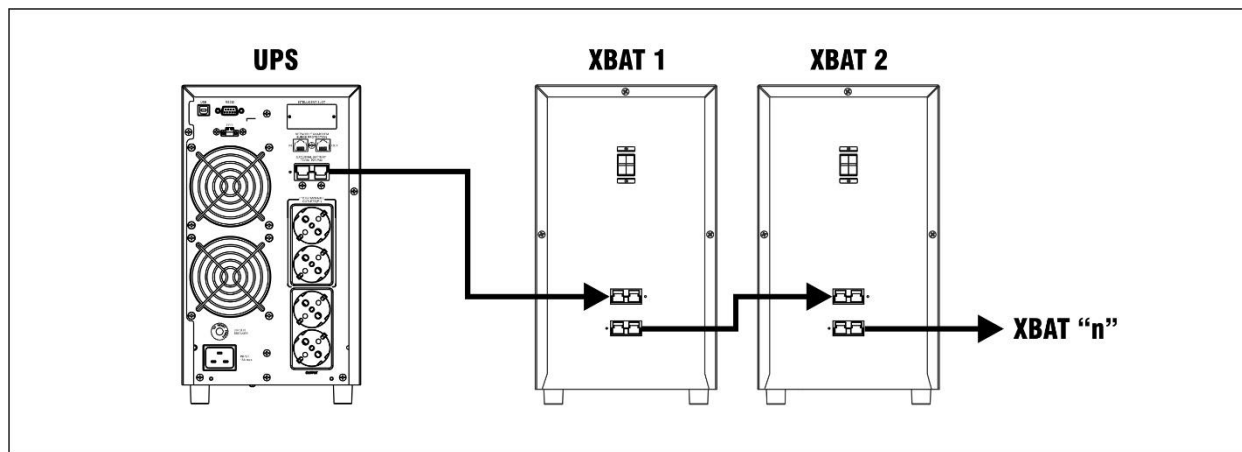
Additional external battery modules can be connected to this UPS to have longer runtime. External batteries are optional for long run applications. XBAT must be connected by using original DC cables included inside XBAT box. XBAT must be connected to the DC connector located on rear panel of the UPS.

**IMPORTANT:** There could be OPTIMA 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.

#### **DC Voltage for standard T09 models:**

T09 1K: 36VDC	T09 1.5K: 36VDC	T09 2K: 72VDC	T09 3K: 72VDC
---------------	-----------------	---------------	---------------

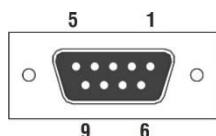
- 1) Place UPS module close to original XSMART XBAT modules.
- 2) Check all DC switches on XBAT are in OFF position.
- 3) Connect UPS to first XBAT module by using original DC cable
- 4) In case system has more than 1 XBAT, connect XBAT#1 to XBAT#2. Then XBAT# 2 to XBAT#3 and so on.



### **COMMUNICATION PORTS**

OPTIMA T09 series comes with 2 serial ports: USB & RS232. Additionally, there is also an Intelligent port able to manage different communication cards as: LAN SNMP card, Dry-Contacts card, RS-485 card and others.

#### **RS232 COMMUNICATION PORT**



**Serial communication port – Pinout:**

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

## 5. OPERATION MODES

This is a True Online 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 lights 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.

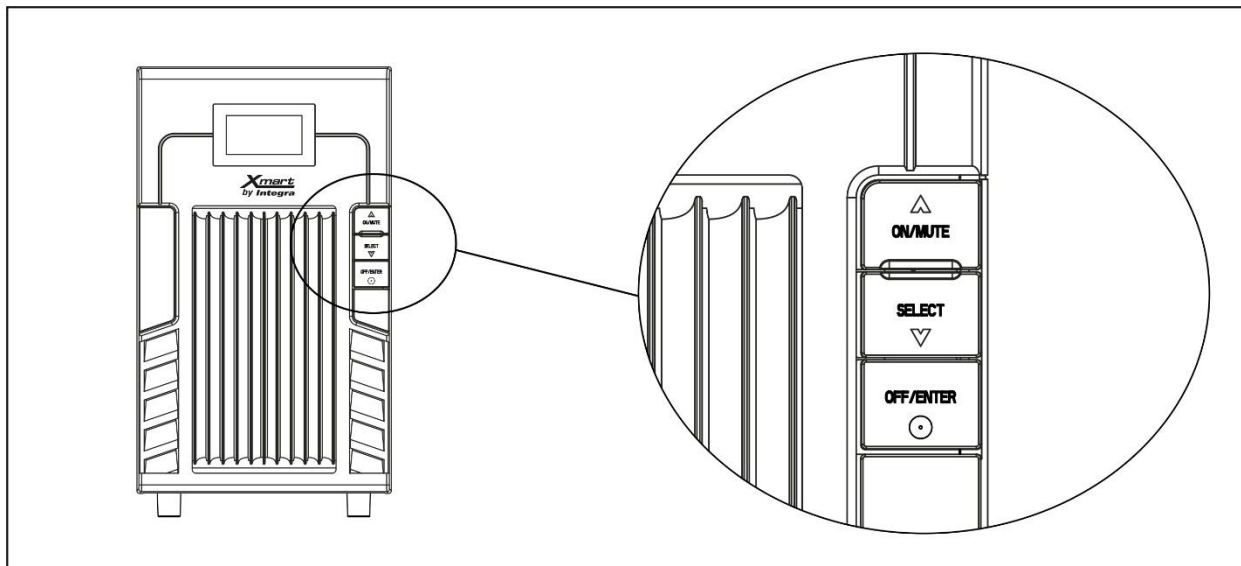
MODO DE OPERACIÓN	DESCRIPCIÓN	PANTALLA LCD
STANDBY	<p>A- When bypass is not allowed UPS output is powered-off (0V). It happens when UPS detects a valid input voltage but ON button has not been pressed.</p> <p>B- Flow chart indicates AC input is used to recharge batteries only.</p>	

<b>ONLINE</b>	<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>	
<b>BATTERY MODE</b>	<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>	
<b>BYPASS MODE</b>	<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>	
<b>ECO MODE</b>	<p>A- ECO symbol is active on LCD</p> <p>B- Flowchart indicates output is powered from input.</p>	
<b>ADVANCED ECO MODE</b>	<p>A-Similar to ECO basic mode but with converters icon in OFF, indicating rectifier and inverter are in OFF state.</p>	
<b>FREQUENCY CONVERTER MODE</b>	<p>A- FC CONVERTER symbol is activated to indicate FC conversion mode is active.</p>	
<b>ERROR/FAILURE MODE</b>	<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>

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

#### <OFF / ENTER>

<b>UPS TURN-OFF:</b>	Press during 2 seconds to turn UPS off
<b>ENTER:</b>	When UPS is in configuration mode, this key operates as ENTER

#### <SELECT>

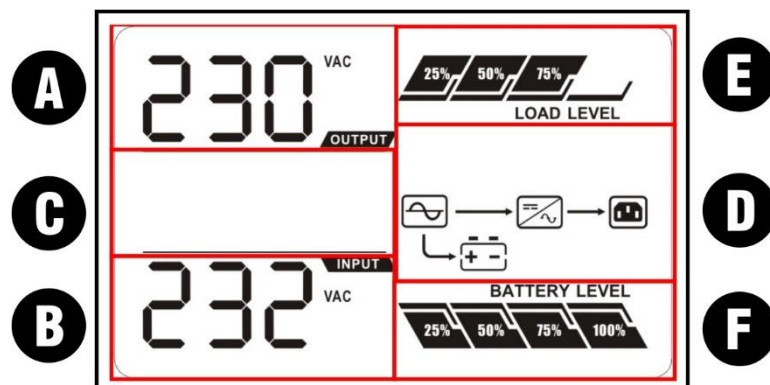
<b>CHECK VALUES</b>	UPS can show in alternative cycle all available values by pushing this button. Push again to skip to next value. LCD comes to normal state after 10 seconds.
<b>CONFIGURATION MODE</b>	By pressing during 5 seconds, UPS enters in configuration mode.

#### <ON / MUTE> + <SELECT>

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



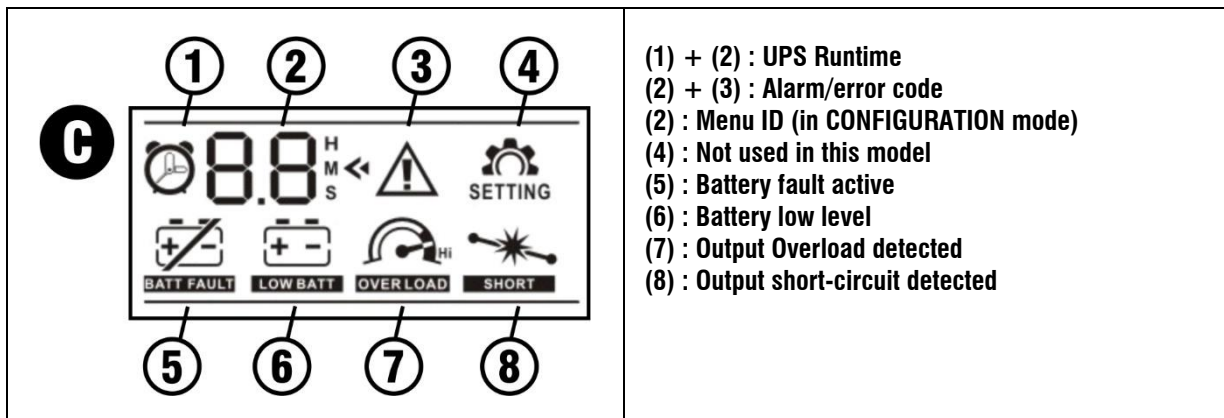
## INPUT INFORMATION:

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



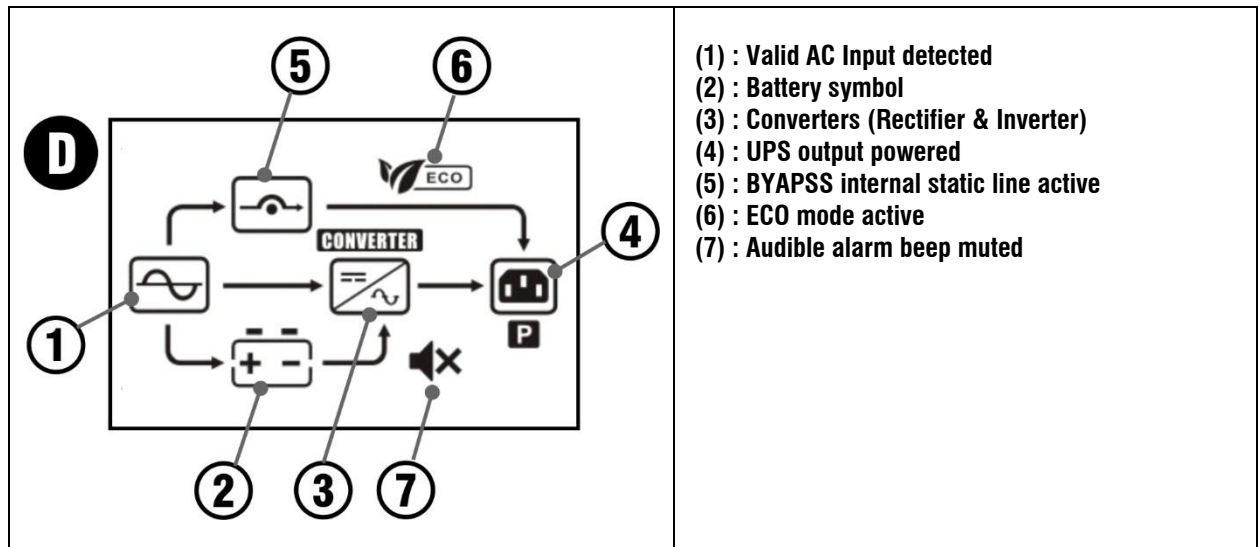
## ALARMS & ERRORS

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:

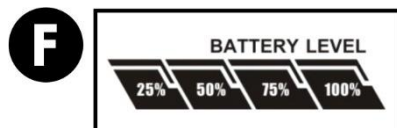
- 25%: Supplied Power is between 0 - 25%  
 50%: Supplied Power is between 26 - 50%  
 75%: Supplied Power is between 51 - 75%  
 100%: Supplied Power is between 76 - 100%



## BATTERY LEVEL METER

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

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



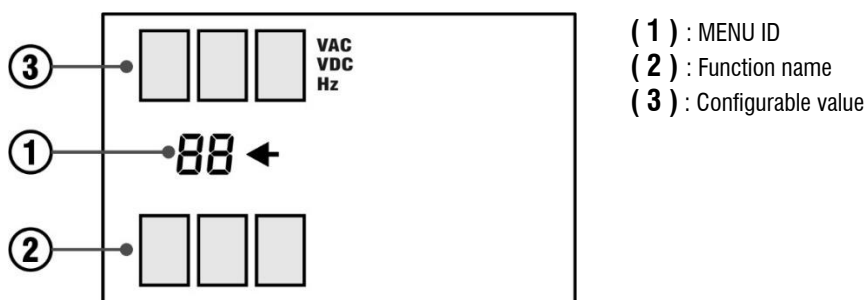
## 7. UPS CONFIGURATION

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:

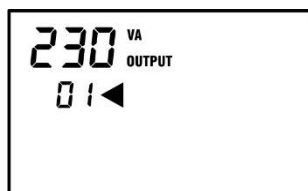
For this model, configuration menu has below options and functions:

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:

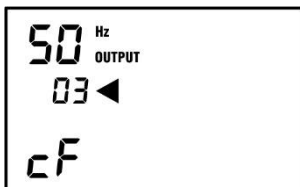
CF = Enable

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)

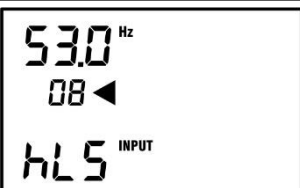
PAR 02: sets low limit (in Vac)

Range HLS 220V: 230V-264V\* / LLS 220V: 170V\*-200V

Range HLS 120V: 120V-132V\* / LLS 120V: 85V\*-115V

Preconfigured values:(\*)

08

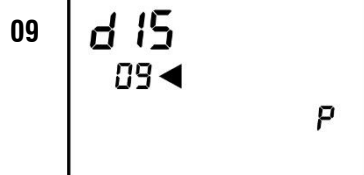


**BYPASS: INPUT FREQUENCY RANGE**

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

PAR 03: sets high limit (in Hz)

PAR 02: sets low limit (in Hz)



**PROG-OUTPUT: ENABLE / DISABLE PROGRAMMABLE OUTPUTS:**

Enables/disables programmable output (check function 11)

ENA : ENABLE

DIS : DISABLE

Factory set: DIS



**PROG-OUTPUT: MAXIMUM RUNTIME FOR PROGRAMMABLE OUTLETS:**

0-999: Time in minutes for programmable outlets in Battery mode (if function 10 is enable).

Factory set: 999 min.

This setting does not affect runtime for standard UPS outlets.



**MAXIMUM RUNTIME:**

This function sets maximum time in Battery mode for the UPS.

000 a 999: Max. Time in minutes.

DIS: Disable. Runtime will be limited by Battery charge level only.

Set values with keys: ↑ & ↓



**BATTERY CAPACITY IN AH:**

This function must be adjusted only if external batteries are connected to the UPS.

Adjusted value must describe total AH (internal + external) connected to UPS.

For example, if UPS has internal bank of 9AH and other external 9AH battery bank is connected, the value to be set is 18AH.

0-999: value can be set 7AH to 999AH



**BATTERY CHARGER CURRENT:**

Sets recharging current in Amps (1, 2, 4, 6 or 8<sup>a</sup>)

Models with supercharger: 8A

Standard chargers: 4A max.



**BOOSTING CHARGING VOLTAGE:**

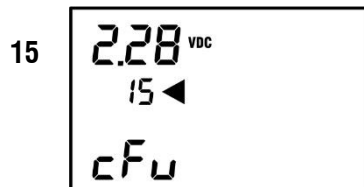
**\*\* NO MODIFICATIONS RECOMMENDED – ONLY FOR TECHNICIANS \*\***

Charging voltage can be increased

Adjustable Voltage: 2.25V per cell up to 2.40V per cell

6 cells per battery

Factory set: 2.36V/cell → 2.36\*6= 14.16V per battery



**FLOATING RECHARGING VOLTAGE**

**\*\* NO MODIFICATIONS RECOMMENDED – ONLY FOR TECHNICIANS \*\***

2.20V per cell up to 2.33V per cell. (6 cells per Battery)

Factory set: 2.28V/cell → 2.28\*6= 13.68V per battery

**LCD CODES AND TEXTS:**

TEXT	DESCRIPTION
<b>BAT</b>	Battery (Batería)
<b>BAH</b>	Battery AH (AH de las baterías)
<b>BR</b>	Battery Replacement (Reemplazar Baterías)
<b>CBV</b>	Charger Boost Voltage (Voltaje del cargador de baterías)
<b>CFV</b>	Charger Float Voltage (Voltaje flotante de recarga de baterías)
<b>CF</b>	Frequency Converter Function (Función de Convertidor de Frecuencia)
<b>CHA</b>	Charger current (Corriente del Cargador de Baterías)
<b>CH</b>	Charger (Cargador de Baterías)
<b>ESC</b>	Escape (Salir)
<b>ON</b>	ON (Encendido)
<b>ENA</b>	Enable (Habilitado)
<b>DIS</b>	Disable (Des-habilitado)
<b>HLS</b>	High Loss (Límite superior del rango)
<b>LLS</b>	Low Loss (Límite inferior del rango)
<b>EP</b>	EPO: Emergency Power Off (Parada de Emergencia del UPS)
<b>TP</b>	Over Temperature in internal circuitries (Sobre temperatura interna)
<b>FU</b>	BYPASS Frequency unstable (Frecuencia en modo bypass inestable)
<b>EE</b>	EEPROM Error (Error de memoria EEPROM)












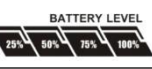
















## 8. ALARM & ERROR CODES

**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.

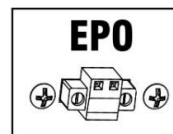
### ALARMS

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	 	1 beep / s
LOW BATTERY	 	1 beep / 2s
BATTERY DISCONNECTED OR FAULTY	 	1 beep / 2s
BATTERY REPLACEMENT REQUIRED	 	1 beep / 2s
BATTERY DISCONNECTED	 	1 beep / 2s
BATTERY OVER-VOLTAGE	 	1 beep / 2s
INPUT WIRING PROBLEM	 	1 beep / 2s
EMERGENCY POWER-OFF ACTIVATED	 	1 beep / 2s
OVER TEMPERATURE	 	1 beep / 2s
BATTERY CHARGER FAILURE	 	1 beep / 2s
UPS IN BYPASS BUT INPUT VOLTAGE OUT OF RANGE	 	1 beep / 2s
UPS IN BYPASS BUT INPUT FREQUENCY OUT OF RANGE	 	1 beep / 2s
FAN FAILURE	 	1 beep / 2s
EEPROM MEMORY ERROR	 	1 beep / 2s

#### **“EPO” MERGENCY POWER-OFF FUNCTION:**





EPO function allows an immediate power off of the UPS when external switch connected to EPO port of the UPS is activated. EPO contacts must be closed to allow UPS to operate under normal mode. When UPS detects EPO port contacts open, UPS “EPO” mode: UPS outlets are powered off and UPS goes to stand-by mode. EP code is indicated on LCD. To reestablish normal mode, EPO contacts must be closed, UPS turned-off and then turned-on by <ON> button in front panel.





## 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.

TIPO DE FALLA	CODIGO DE FALLA	SIMBOLO
DC BUS start failure	01	
DC BUS High	02	
DC BUS Low	03	
INVERTER start failure	11	
INVERTER High voltage	12	
INVERTER Low voltage	13	
SHORT CIRCUIT detected at INVERTER output	14	 SHORT
BATTERY voltage too HIGH	27	 BATT FAULT
BATTERY voltage too LOW	28	 BATT FAULT
OVER TEMPERATURE	41	
OVERLOAD: Detected at UPS output	43	 OVERLOAD
BATTERY CHARGER Failure	45	

## AUDIBLE ALARM BEEPS

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

## 9. TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE & SOLUCION
<b>Short runtime in Battery mode</b>	Low Batteries Charge: Recharge Batteries during 4-6 h. Old Batteries: Batteries must be replaced by new ones
ALARMS	PROBABLE CAUSE & SOLUCION
<b>Output Overload</b>	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.
<b>Battery failure</b>	Batteries are disconnected or with a very low charging level: Revise batteries connection. Recharge batteries during 4-6 hours. If problem is not solved call technical service.
<b>Batteries disconnected</b>	Revise batteries connection.
<b>EPO active</b>	Revise EPO port on rear panel of UPS. If external switch is connected to EPO port, check external switch.
<b>Over Temperature</b>	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.
<b>FAN Failure</b>	Check if fans are working properly. If not call technical service.
<b>EEPROM Failure</b>	Turn-off and power-off UPS. Restart UPS. If not solved call technical service.
ERROR CODES	PROBABLE CAUSE & SOLUCION
<b>01 , 02 , 03</b>	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.
<b>11 , 12 , 13</b>	Proceed as error 01
<b>14</b>	Short-circuit detected in the load connected to UPS. Turns UPS OFF. Identify faulty load and remove it from UPS output. Turns UPS on.
<b>27</b>	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.
<b>28</b>	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.
<b>41</b>	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.
<b>43</b>	Overload detected at UPS output. Turn UPS off and remove non critical loads to reduce power consumption. Restart UPS.
<b>45</b>	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

**Batteries must be replaced by technical personnel only.**

**Batteries are located inside the UPS cabinet. For having access to batteries, UPS must be turned off and disconnected from AC source. Top cover of the UPS must be separated from main case body by removing screws.**

**Batteries must be replaced by new batteries with same specifications and technology.**

### **WARNING - BATTERIES:**

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.

### 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.

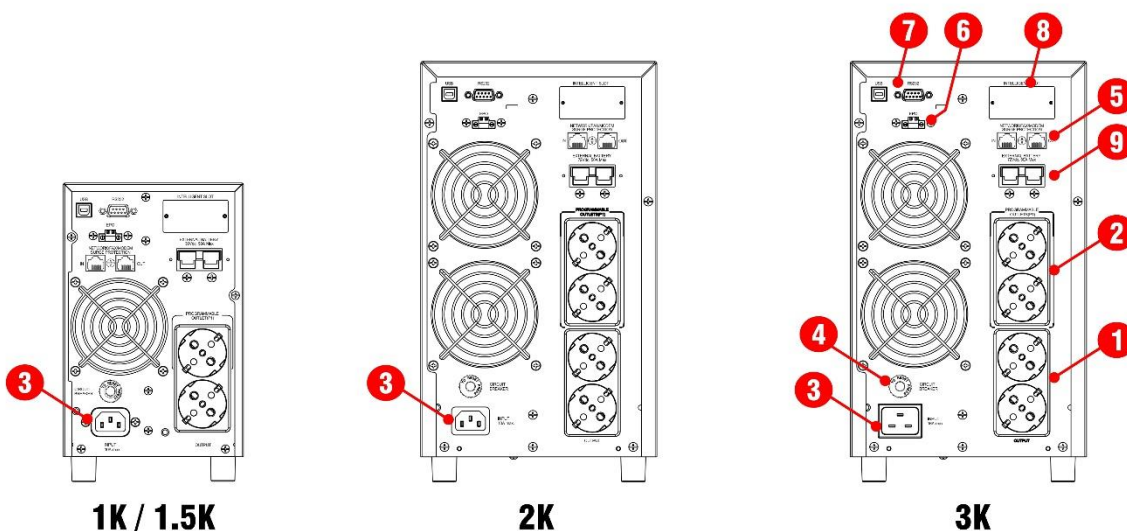
- XMART is not responsible for damage that occurs as a result of your failure to follow the instructions intended for this hardware product.

## 14. FRONT & REAR PANEL

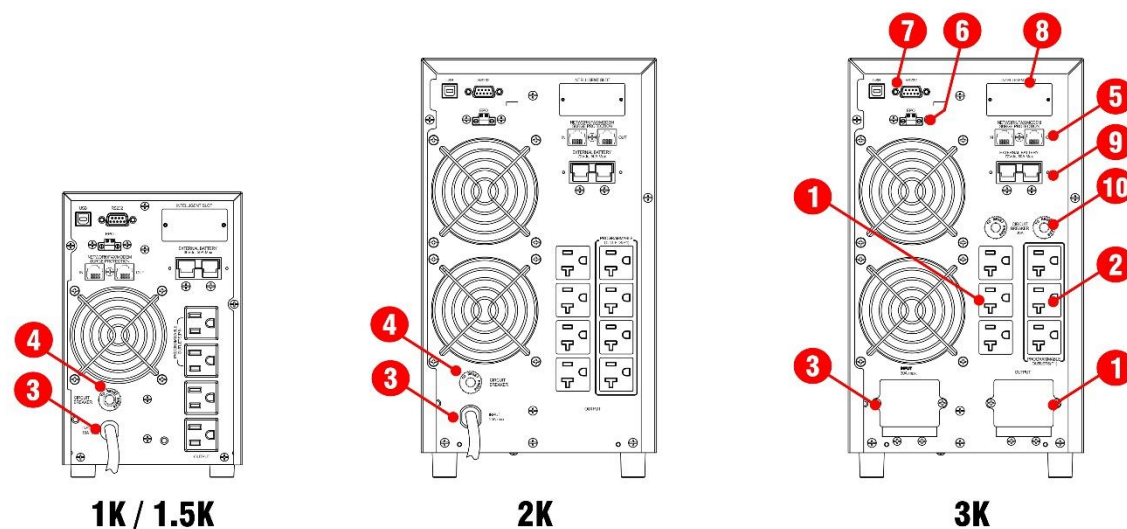
- 1.- Standard UPS Outlets
- 2.- Programmable Outlets
- 3.- AC Input
- 4.- Input AC Breaker
- 5.- Surge Protected RJ45 sockets

- 6.- Emergency Power Off connector
- 7.- USB & RS232
- 8.- Intelligent port
- 9.- DC connector for external batteries
- 10.- Output Breaker

### T09 230V SCHUKO



### T09 120V & 220V NEMA



## 15. SPECIFICATIONS (1/2)

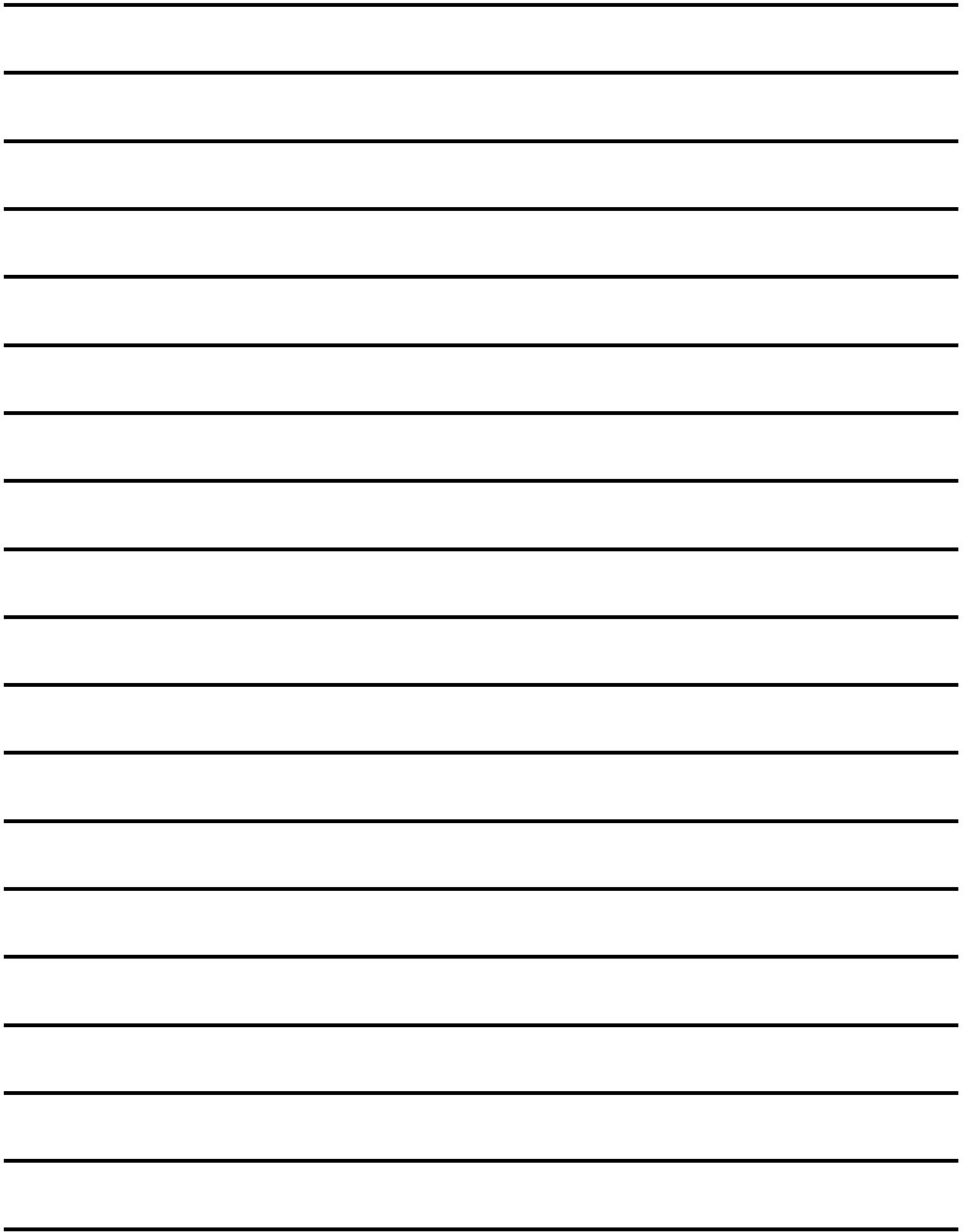
OPTIMA T09	1K	1.5K	2K	3K
Capacity / Capacidad (VA)	1000VA	1500VA	2000VA	3000VA
Capacity / Capacidad (W)	900W	1350W	1800W	2700W
<b>INPUT / ENTRADA</b>				
Range / Rango - 120V	Model 120V: 80Vac-150Vac @ 100% load / Model 120V: 50Vac-150Vac @ 50% load			
Range / Rango - 220V	Model 220V: 160Vac-300Vac @ 100% load / Model 220V: 110Vac-300Vac @ 50% load			
Freq. Range / Rango Frecuencia	40 Hz - 70Hz			
Max. Current / Corriente Max. (Model 120Vac)	13.8A (RMS)	20.6A (RMS)	27.5A (RMS)	41.3A (RMS)
Max. Current / Corriente Max. (Model 220Vac)	6.9A (RMS)	10.3A (RMS)	13.8A (RMS)	20.6A (RMS)
Phase / Fases	Single phase with ground / 1 fase + Tierra			
Power Factor / Factor de Potencia	> 0.99 @ 100% load			
Input THDi / THDi de Entrada	< 5% @ 100% load			
Slew Rate / Seguimiento Frecuencia	1 Hz / s			
<b>OUTPUT / SALIDA</b>				
Voltage Output / Voltaje de Salida AC	(*N1) Model 120V: 100/110/115/120/127Vac - Model 220V: 200/208/220/230/240Vac			
Output Regulation / Regulación de Salida	+/- 1%			
Frequency / Frecuencia (Batt. Mode)	50 Hz +/- 0.1 Hz - 60Hz +/- 0.1 Hz			
Current Crest Ratio / Factor de Cresta	3:1 @ 100% load			
Harmonic Distortion / Dist. Armónica (THDv)	< 2% @ Linear Load / Carga Lineal < 4% @ No Linear Load / Carga no Lineal			
Dynamic Accuracy / Regulación Carga Variable	< +/- 5% Online (variation 0%-100% & 100%-0% R Load)			
AC to Inverter / Tiempo AC a Inversor	0 ms			
Waveform / Forma de Onda	Pure Sinewave / Sinusoidal Pura			
Freq. Conversion / Conversión Frec.	Y	Y	Y	Y
EPO /Apagado Emergencia	Y	Y	Y	Y
Programmable Outputs / Salidas Prog.	Y	Y	Y	Y
DC Component / Componente DC	< 100mV			
<b>EFFICIENCY / EFICIENCIA</b>				
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 / Pérdidas (BTU) @ 100% load	276	414	491	737
<b>OVERLOAD/ SOBRECARGA</b>				
AC Mode / Modo Normal	100%~110%: (warning-alarma) / 110%~130%: 5min to bypass / > 130% : 30s to bypass			
Battery Mode / Modo Batería	100%~110%: (warning-alarma) / 110%~130%: 5min to OFF / > 130% : 30s to OFF			
<b>PROTECTIONS</b>				
Surge / Contra Picos	120V MODEL: >800J (L-N, L-G, N-G) / 220V MODEL: >1250J (L-N, L-G, N-G)			
Short Circuit / Contra Cortos en la salida	Outlets power-off / Apagado de las salidas (400% of nominal current / 5 cycles)			
Input Current / Corriente de Entrada	Circuit Breaker / Disyuntor			
Output Current / Corriente de Salida	Circuit Breaker for 3K NEMA models / Disyuntor para modelos de 3K NEMA			
Battery Current / Corriente de baterías	Internal Fuse 80A Fast Action / Fusible Interno 80A Acción Rápida			
Starting Time / Tiempo de Arranque	7s - 10s (@ 100% load)			
<b>BATTERIES / BATERIAS</b>				
Type / Tipo	Sealed Lead Acid VRLA-AGM / Sellada de Libre Mantenimiento VRLA-AGM			
Cap. & Qty	12V/7AH x 3 (36VDC)	12V/9AH x 3 (36VDC)	12V/7AH x 6 (72VDC)	12V/9AH x 6 (72VDC)
Recharge Time / Recarga	4 Hours for 90% capacity / 4 Horas para recuperar el 90% de carga			
Charging VDC / Voltaje del cargador (Floating)	41.0VDC	41.0VDC	82.1VDC	82.1VDC
Shutdown battery Voltage / Voltaje DC Apagado	10.0 Vdc per battery typical (*N4)			
Charging Amps / Corriente de Carga	1.5 A (Max.)			
<b>EXT. BATT CABINETS (Optional) - BATERIAS EXTERNAS (opcionales)</b>				
Standard EXT-BATT pack	12V-9Ah x 6 (36VDC)	12V-9Ah x 6 (36VDC)	12V-9Ah x 12 (72VDC)	12V-9Ah x 12 (72VDC)
<b>INDICATORS / INDICADORES</b>				
LCD	UPS status, Load level, Battery, Input/Output voltage, Discharge timer, and Fault conditions Estado del UPS, Consumo, Baterías, Voltaje Entrada/Salida, Autonomía, Diagnostico Fallas			
<b>ALARM / ALARMAS</b>				
Alarm Beep / Alarma Sonora:	Battery Mode, Low batt., Overload, UPS Failure / Modo Batería, Baja batería, Sobrecargas, Falla			

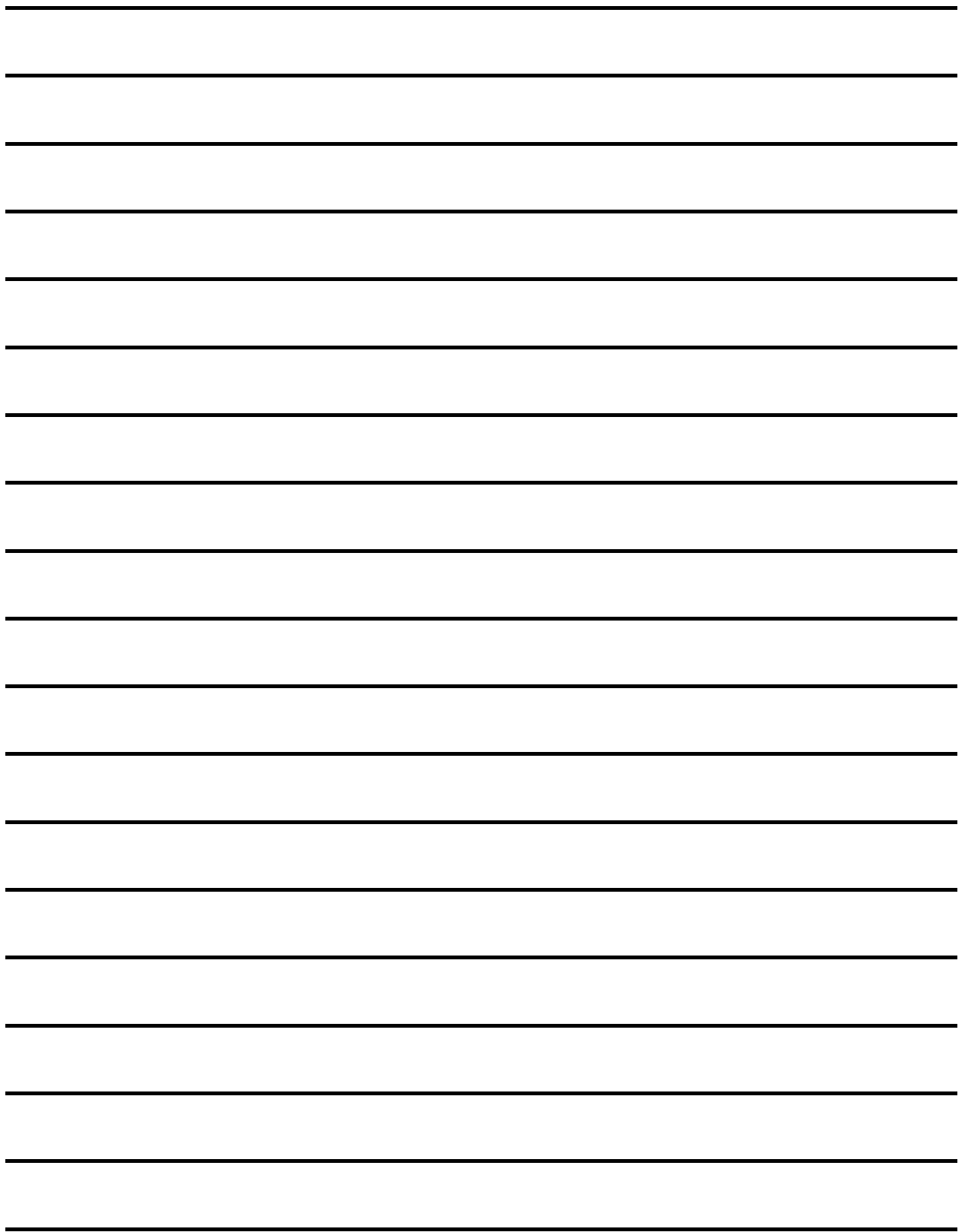
## 15. SPECIFICATIONS (2/2)

OPTIMA T09	1K	1.5K	2K	3K
PRODUCT FEATURES / CARACTERISTICAS DEL PRODUCTO				
DxWxH / Prof.*Ancho*Altura (mm)	397x145x220	397x145x220	421x190x318	421x190x318
Net Weight / Peso Neto (kgs)	13	14	26	27
UPS MODEL: 230Vac (EUROPE)				
Total Outlets / Total Salidas	SCHUKO x 2	SCHUKO x 2	SCHUKO x 4	SCHUKO x 4
Standard Power Outlets / Salidas Estándar	SCHUKO x 1	SCHUKO x 1	SCHUKO x 2	SCHUKO x 2
Prog. Outlets / Salidas prog. (*N2)	SCHUKO x 1	SCHUKO x 1	SCHUKO x 2	SCHUKO x 2
UPS MODEL: 120Vac (AMERICA)				
Total Outlets / Total Salidas	NEMA-15 x 4	NEMA-15 x 4	NEMA-15 x 8	NEMA-20 x 6 + TB
Standard Power Outlets / Salidas Estándar	NEMA-15 x 2	NEMA-15 x 2	NEMA-20 x 4	NEMA-20 x 3 + TB
Prog. Outlets / Salidas prog. (*N2)	NEMA-15 x 2	NEMA-15 x 2	NEMA-20 x 4	NEMA-20 x 3
PACKING / EMPAQUE				
UPS "Tower" Type				
Unit CARTON: DxWxH (mm)	472x230x325	472x230x325	560x320x460	560x320x460
Unit Gross Weight / Peso Bruto (Kg)	14	15	28	29
Half Pallet / Medio Pallet	30pcs	30pcs	12pcs	12pcs
Full Pallet / Pallet Completo	50pcs	50pcs	24pcs	24pcs
OPERATIONAL CONDITIONS / CONDICIONES DE OPERACIÓN				
Rel. Humidity / Humedad Relativa	< 95 % RH (non-condensing / no condensante)			
Temperature / Temperatura	0 - 40 °C			
Noise Level / Ruido Producido	< 45dBA @ 1 m			
4.500 meters over sea level / sobre nivel del mar.				
Max. Altitude / Altura de Operación Max.	* 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 98 SE/ME/NT 4.x/2000/2003/XP/Vista/2008 / Windows 7; Linux; Unix; Mac OS			
Intelligent SNMP Port:	LAN Card SNMP type - optional / Comunicación con LAN mediante SNMP opcional AS400 Interface (optional comm. Card) / Interfaz con AS400 (tarjeta opcional)			
Technical specifications can be modified to comply with special requirements / Las especificaciones pueden bajo requerimiento adaptarse a proyectos				
Technical specifications may change without further notice / Por motivos comerciales o técnicos las especificaciones pueden cambiar sin previo aviso.				
(*N1): Output voltage is selectable by LCD / El Voltaje de salida es configurable entre 4 alternativas seleccionables en el LCD				
(*N2): Backup time for programable outlets can be configurable (in minutes) / Las salidas programables pueden configurarse en minutos				
(*N4) Shutdown voltage depends of load % & runtime / Voltaje de corte de baterías depende de carga y runtime				
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				
** Derate Watts capacity to 70% in frequency converter mode. Derate to 70% when output voltage is set to 200Vac or 100Vac				
** 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				

[illegible]









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Maracay. Venezuela  
[sales@xmart-ups.com](mailto:sales@xmart-ups.com)