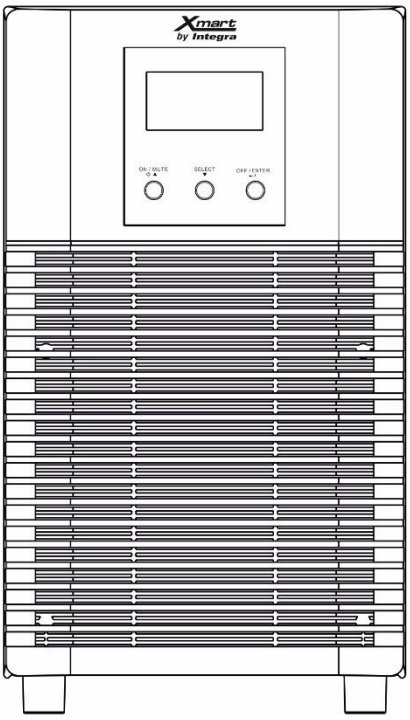
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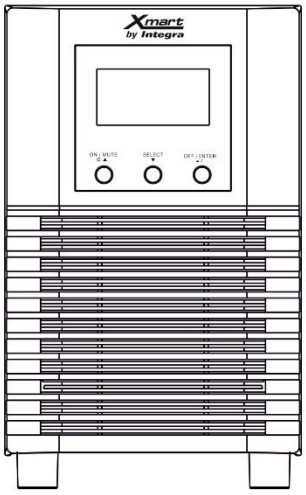
ENGLISH

USER MANUAL
OPTIMA T10 1K/1.5K/2K/3K

UPS ONLINE DOUBLE CONVERSION
TOWER INSTALLATION

230V SCHUKO
120V NEMA
220V NEMA





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15. SPECIFICATIONS

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 wheelie 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 T10 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).
This XMART equipment features a Conformal Coating treatment on its internal boards and components. Conformal coating is a technique that protects against moisture and corrosive contaminants to ensure stable performance and extend its lifespan in various environments, as long as the requirements of the technical specifications of the equipment are met.

OPTIMA T10 series has 4 different models for supporting all kind of applications from 1KVA to 3KVA:

Models 120V (UL):	1.000VA/1.000W	1.500VA/1.450W	2.000VA/1.930W	3.000VA/2.880W
Models 220V-230V:	1.000VA/1.000W	1.500VA/1.500W	2.000VA/2.000W	3.000VA/3.000W

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 & CSA C22.2 (for 120V UL models only)	**UL1778 & CSA C22.2 (by cTUVus)**
FCC Part 15 (for 120V UL models only)	**FCC Part 15 Class A**
IP PROTECTION	**IP21 (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.*

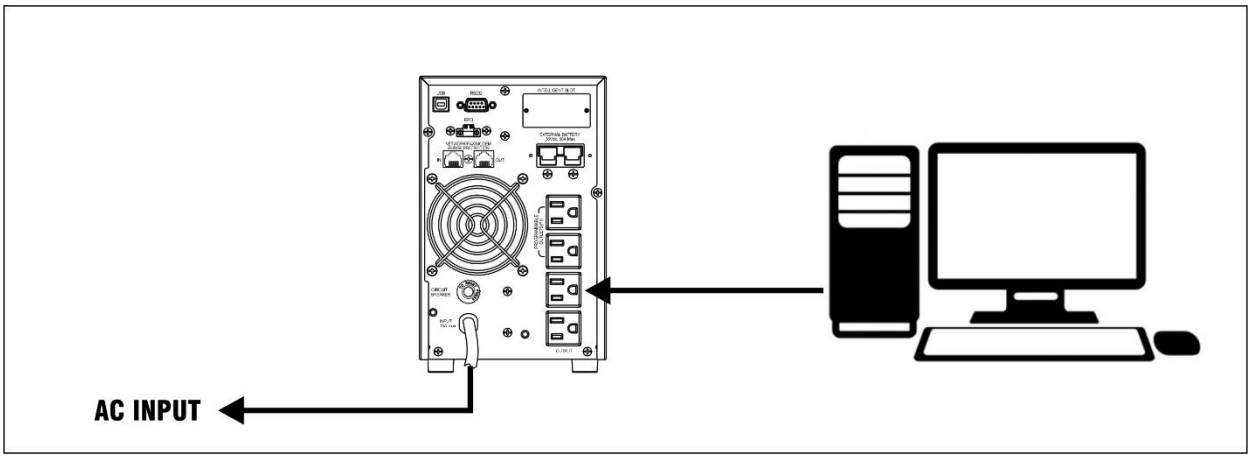
4. INSTALLATION

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 using 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.

IMPORTANT: This unit MUST NOT be installed into closed boxes/cabinets that avoid fresh air access. During normal operation, this unit needs fresh air to flow through ventilation system (Vents) to cool power circuits. Installing this unit in a closed box/cabinet makes inner air to be recycled without refreshing, increasing inside temperature, exceeding operation max. temperature, and causing permanent damage to the UPS.

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 than described on this manual. User must always double check the DC voltage printed on the rear panel of the UPS to confirm it matches with DC voltage provided by XBAT.

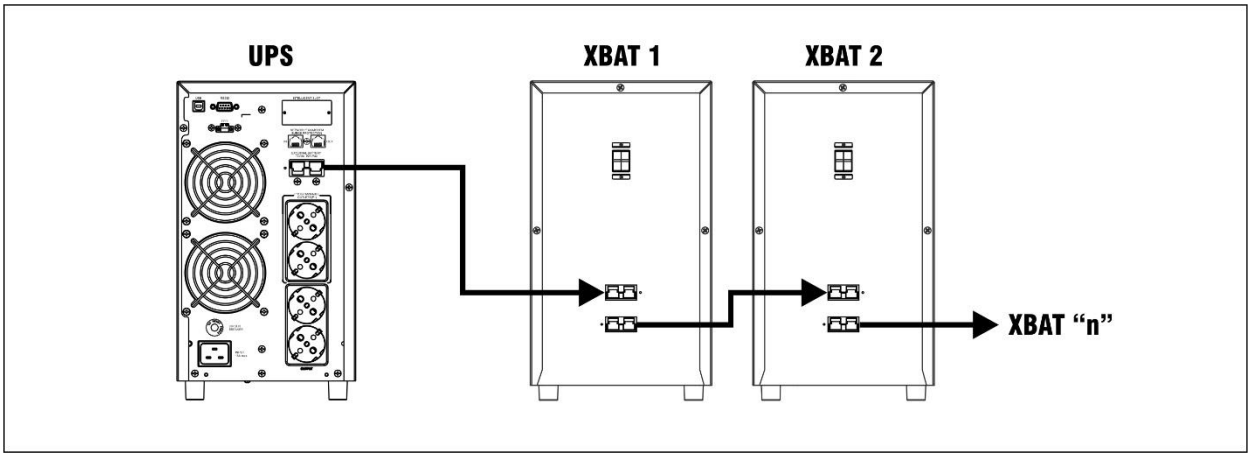
Number of Batteries, DC Voltage, and DC Connector details for standard T10 models:

	UPS Capacity			
	1K	**1.5K**	**2K**	**3K**
Number of Batteries	3	3	6	6
Nominal Battery Voltage:	36VDC	36VDC	72VDC	72VDC
DC Connector Color (*)	Red	Red	Blue	Blue

(*) This is the color of the DC connector on the UPS Rear Panel, on the XBAT Rear Panel, and in the XBAT Cable

XBAT connection for standard T10 models:

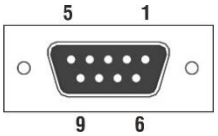
1) Place UPS module close to original XMART XBAT modules.
2) Check all DC switches on XBAT are in OFF position.
3) Connect UPS to first XBAT module by using original DC cable
4) In case system has more than 1 XBAT, connect XBAT#1 to XBAT#2. Then XBAT# 2 to XBAT#3 and so on.



COMMUNICATION PORTS

OPTIMA T10 series comes with 2 serial ports: USB & RS232. Additionally, there is also an Intelligent port able to manage different communication cards, such as: LAN SNMP card, Dry-Contacts card, RS-485 card among others.

RS232 COMMUNICATION PORT



Serial Port – Pinout:
Pin 2: RX
Pin 3: TX
Pin 5: GND

IMPORTANT:
Communication cable for this RS-232 port must be wired 1 to 1, between pins 2, 3, & 5 of both ends.

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 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 enabled, 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 other operation modes under operator demand 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.

IMPORTANT NOTES:

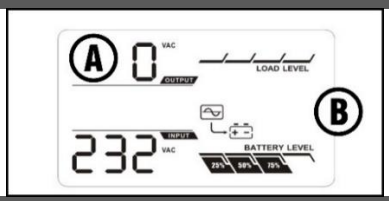
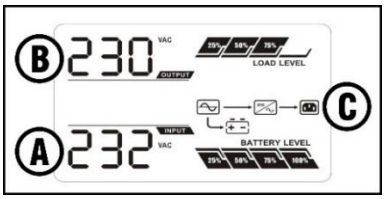
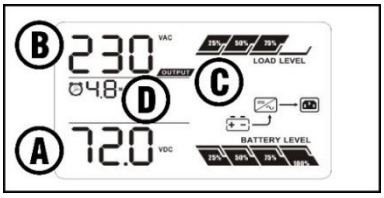
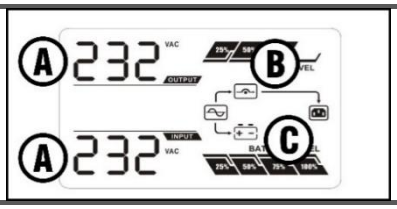
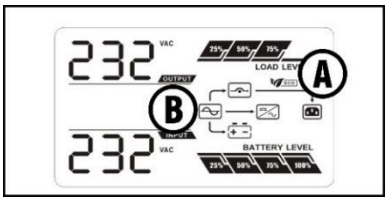
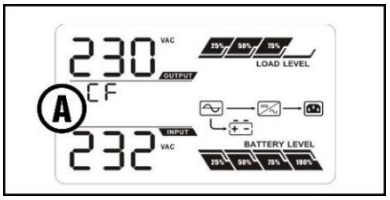
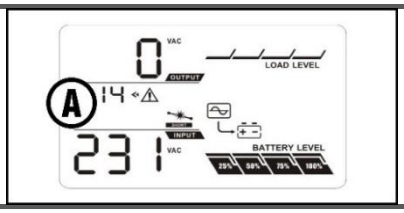
1.- Under CF mode, UPS will disable BYPASS mode. Since UPS has been configured to generate output with frequency value different to input frequency, BYPASS mode is disabled to avoid a not acceptable frequency value at output.
2.- When CF function is activated, maximum power output is de-rated to 60%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

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 to10ms.
ECO mode must be activated on LCD according to configuration section of this manual.

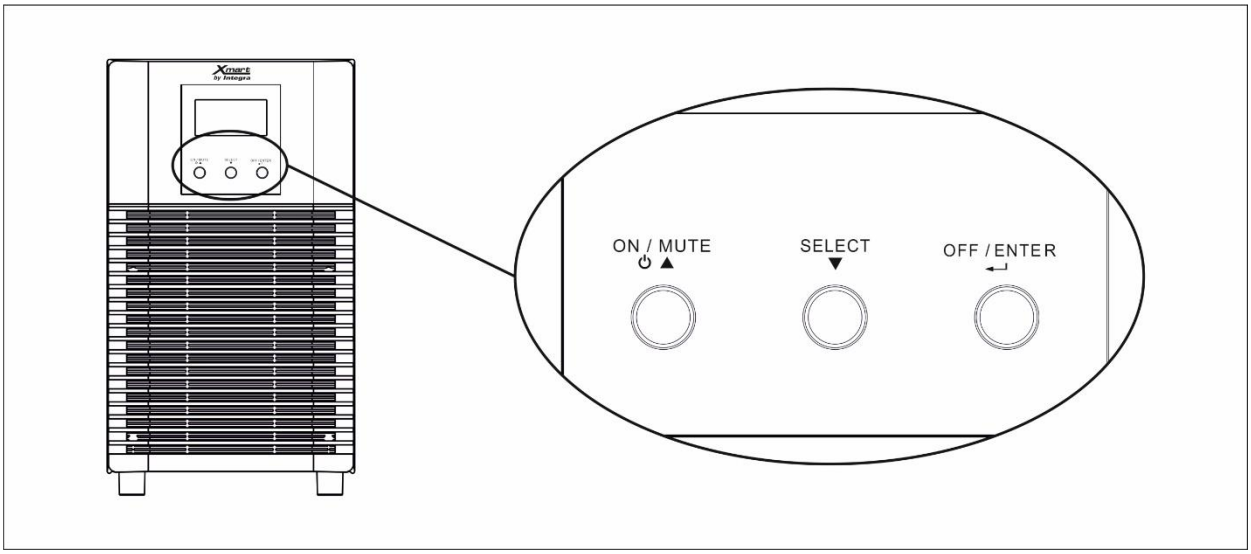
LCD SCREEN ACCORDING TO OPERATION MODE: (FOR 230VAC models)

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

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

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, ECO or FREQUENCY CONVERTER mode if this key is selected for 3 seconds. Self-test performs a full checking of systems and batteries.

<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>

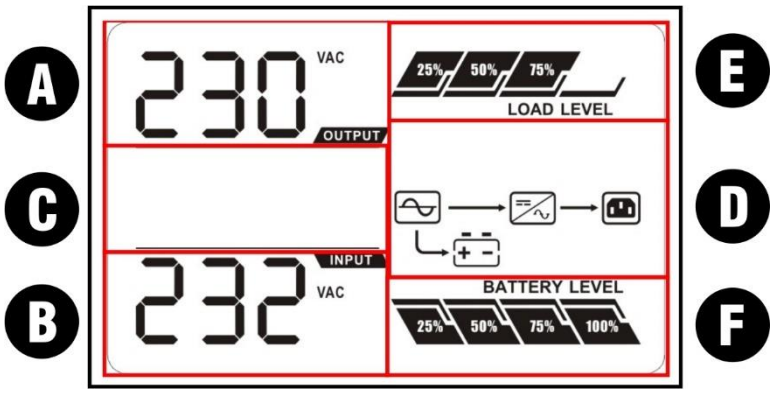
CHECK VALUES	UPS can show in sequential cycle all available values by pushing this button. Push again to skip to next value. LCD comes back to normal state after 10 seconds.
CONFIGURATION MODE	By pressing for 5 seconds, UPS enters in configuration mode.

<ON / MUTE> + **<SELECT>**

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

LCD DESCRIPTION

LCD can be divided in 6 functional areas:



OUTPUT INFORMATION:

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



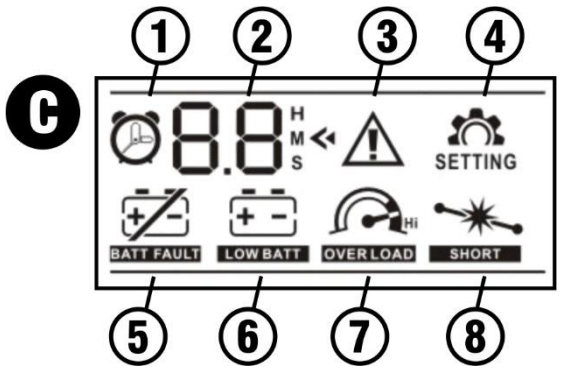
INPUT INFORMATION:

Displays: AC output voltage, Output frequency (in Hz)



ALARMS & ERRORS

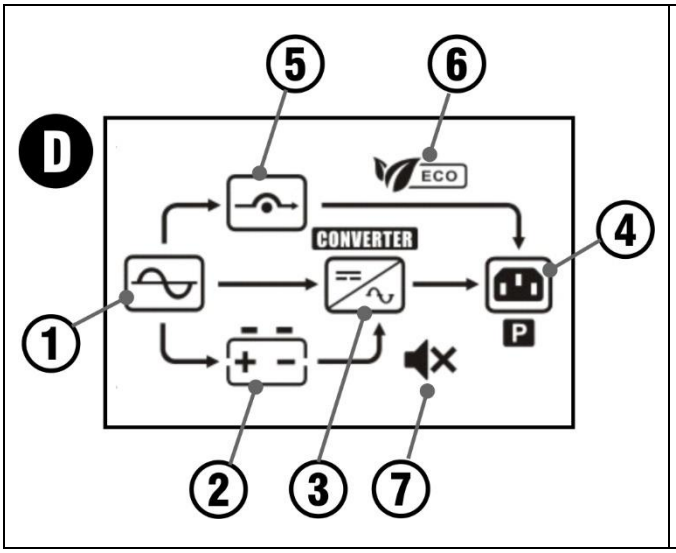
This section of the LCD displays active alarms and errors providing codes and descriptive symbols. This section also shows remaining runtime in battery mode.



(1) + (2) : UPS Runtime
(2) + (3) : Alarm/error code
(2) : Menu ID (in CONFIGURATION mode)
(4) : Not used in this model
(5) : Battery fault active
(6) : Battery low level
(7) : Output Overload detected
(8) : Output short-circuit detected

FLOWCHART – UPS STATES & MODES

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



(1) : Valid AC Input detected
(2) : Battery symbol
(3) : Converters (Rectifier & Inverter)
(4) : UPS output powered
(4)+[P]: Programmable output powered
(5) : BYAPSS internal static line active
(6) : ECO mode active
(7) : Audible alarm beep muted

OUTPUT POWER METER

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

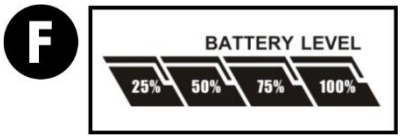
25%: **Supplied Power is between 0 - 25%**
50%: **Supplied Power is between 26 - 50%**
75%: **Supplied Power is between 51 - 75%**
100%: **Supplied Power is between 76 - 100%**



BATTERY LEVEL METER

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

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



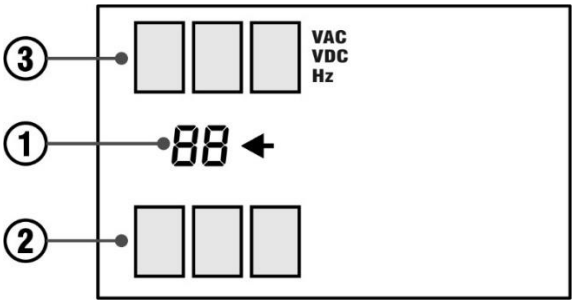
7. UPS CONFIGURATION

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:



(1) : MENU ID
(2) : Function name
(3) : Configurable value

KEYBOARD IN CONFIGURATION MODE:

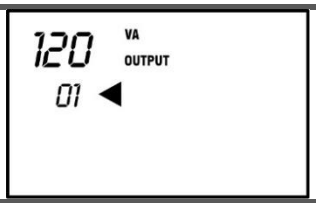
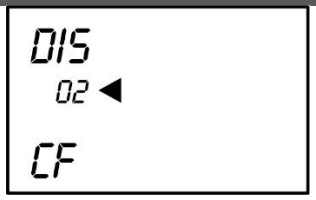
<ON / MUTE> Used as ↑ key to navigate or changing parameters value

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

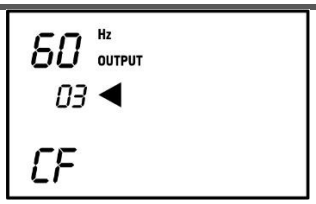
<SELECT> Used as ↓ key to navigate or changing parameters value

CONFIGURATION MENU:

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

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 enabled or disabled according to the value selected in PAR 03:** **ENA = ENABLE** **DIS = DISABLE** **If CF is enabled Function 03 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

- If CF Mode is Disabled, PAR 02 shows BAT and Initial frequency at Battery mode can be set to:

BAT 50 = 50Hz

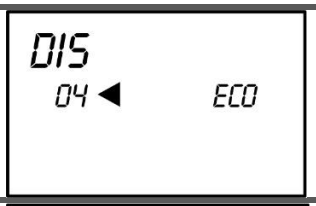
BAT 60 = 60Hz

- If CF Mode is Enabled, PAR 02 shows CF and Output Frequency in ONLINE mode can be set as:

CF 50 = 50Hz

CF 60 = 60Hz

04



ECO ENABLE / DISABLE:

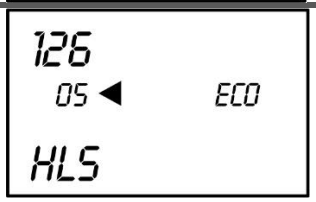
ENA = ENABLE

DIS = DISABLE

Factory set: DIS

Check more details at operation modes section.

05



ECO – INPUT VOLTAGE RANGE (Vac)

- Valid input VOLTAGE range for ECO mode can be configured by setting high limit and low limit (PAR 02):

HLS: High Limit Setting (in Vac)

220V Models: HLS from +7 to +24Vac of nominal voltage (Factory set: +12Vac)

120V Models: HLS from +3 to +12Vac of nominal voltage (Factory set: +6Vac)

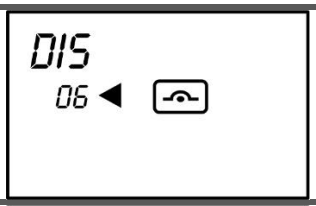
LLS: Low Limit Setting (in Vac)

Models 220V: LLS from -7 to -24Vac of nominal voltage (Factory set: -12Vac)

Models 120V: LLS from -3 to -12Vac of nominal voltage (Factory set: -6Vac)

Set values with keys: ↑ & ↓

06



BYPASS: ENABLE / DISABLE:

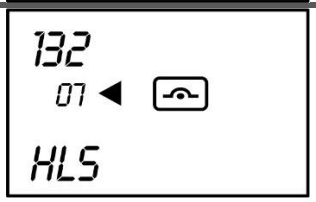
- Enables or disables BYPASS function when UPS is off.

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 02):

HLS: High Limit Setting (in Vac)

220V Models: HLS 230Vac – 264Vac (Factory set as 264Vac)

120V Models: HLS 120Vac – 140Vac (Factory set as 132Vac)

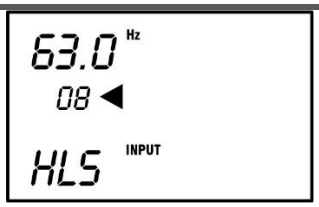
LLS: Low Limit Setting (in Vac)

220V Models: LLS 170Vac – 220Vac (Factory set as 170Vac)

120V Models: LLS 85Vac – 115Vac (Factory set as 85Vac)

Set values with keys: ↑ & ↓

08



BYPASS: INPUT FREQUENCY RANGE

- Valid input FREQUENCY range for bypass mode can be configured by setting high limit and low limit (PAR 02):

HLS: High Limit Setting (in Vac)

50Hz Models: HLS 51Hz – 55Hz (Factory set as 53Hz)

60Hz Models: HLS 61Hz – 65Hz (Factory set as 63Hz)

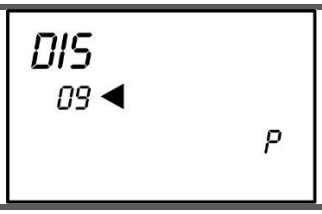
LLS: Low Limit Setting (in Vac)

50Hz Models: LLS 45Hz – 49Hz (Factory set as 47Hz)

60Hz Models: LLS 55Hz – 59Hz (Factory set as 57Hz)

Set values with keys: ↑ & ↓

09



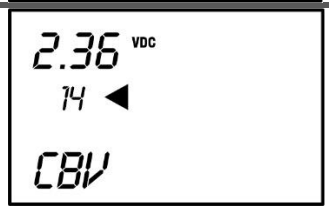
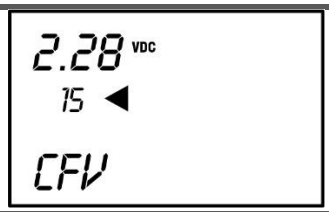
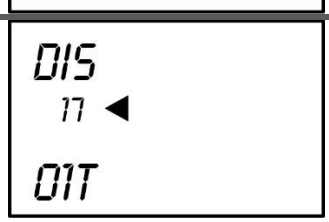
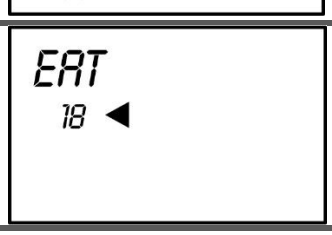
PROG-OUTPUT: ENABLE / DISABLE PROGRAMMABLE OUTPUTS:

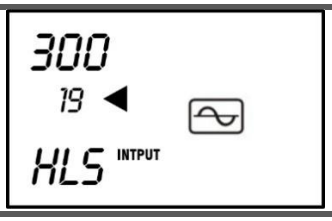
Enables/disables programable output (check Parameter 10)

ENA : ENABLE

DIS : DISABLE

Factory set: DIS

10		**PROG-OUTPUT: MAXIMUM RUNTIME FOR PROGRAMMABLE OUTLETS:** **0-999: Time in minutes for programable outlets in Battery mode (if function 10 is enable).** **Factory set: 999 min.** **This setting does not affect runtime for standard UPS outlets.**
11		**MAXIMUM RUNTIME:** **This function sets maximum time in Battery mode for standard outlets.** **000 a 999: Max. Time in minutes.** **DIS: Disable. Runtime will be limited by Battery charge level only.** **Factory set: DIS** Set values with keys: ↑ & ↓
12		**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**
13		**BATTERY CHARGER CURRENT:** **Sets maximum recharging current in Amps (1, 2, 4, 6 or 8 A)** **Factory set: 2 A**
14		**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**
15		**FLOATING CHARGING VOLTAGE:** **** NO MODIFICATIONS RECOMMENDED – ONLY FOR TECHNICIANS **** **Charging voltage can be increased** **Adjustable Voltage: 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**
16		**EPO LOGIC** **** NO MODIFICATIONS RECOMMENDED – ONLY FOR TECHNICIANS **** **AO: Active Open: If EPO switch is open UPS will power-off outputs** **AC: Active Closed: If External EPO switch is closed, UPS will power-off their outputs** **Factory set: Active Open**
17		**ISOLATION TRANSFORMER (optional):** **ENA: Allows connection of an output ISO transformer** **DIS: Does not allow connection of an ISO transformer** **Factory set: DIS**
18		**AUTONOMY TIME ON LCD:** **EAT (Estimated Autonomy Time): LCD will show remaining runtime in battery mode** **RAT (Running Autonomy Time): LCD will show running time in battery mode** **Factory set: EAT**

19		**ACCEPTABLE INPUT RANGE:** **120V Models:** **HLS: (High Limit Setting): 140/145/150Vac** **LLS: (Low Limit Setting): 55/60/65/70/75/80Vac** **230V models 230V:** **HLS: (High Limit Setting): 280/290/300Vac** **LLS: (Low Limit Setting): 110/120/130/140/150/160Vac**

LCD CODES AND TEXTS:

TEXTS	DESCRIPTION
AO	Active Open
AC	Active Close
BAH	Battery AH
BAT	Battery
BR	Battery Replacement
CBV	Charger Boost Voltage
CFV	Charger Float Voltage
CF	Frequency Converter Function
CHA	Charger current
CH	Charger (Battery)
DIS	Disable
EAT	Estimated Autonomy Time
RAT	Running Autonomy Time
ENA	Enable
EP	EPO: Emergency Power Off
ESC	Escape
OK	OK
OI	Overcurrent at Input
ON	ON
HLS	High Limit Setting
LLS	Low Limit Setting
TP	Over Temperature in internal circuitries
SF	Site Wiring Fault
FU	BYPASS Frequency Unstable
EE	EEPROM Error
SD	Shutdown

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 to work in ONLINE mode.**
- **ERRORS: Are usually represented by steady codes or symbols. Audible alarms for errors always sound continuously. Error states force UPS to go to Static Internal BYPASS mode.**

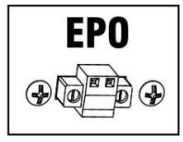
ALARMS

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

Tipo de ALARMA	SIMBOLO INTERMITENTE	ALARMA SONORA
OVERLOAD (UPS Load exceeds UPS capacity)	OVERLOAD	1 beep / s
LOW BATTERY	LOW BATT	1 beep / 2s
BATTERY FAULT	BATT FAULT	1 beep / 2s
BATTERY REPLACEMENT	br	1 beep / 2s
BATT NOT CONNECTED		1 beep / 2s
OVER-CHARGE	BATTERY LEVEL 25% 50% 75% 100%	1 beep / 2s
SITE WIRING FAULT	SF	1 beep / 2s
EPO	EP	1 beep / 2s
OVER TEMPERATURE	tP	1 beep / 2s
CHARGER FAILURE	ch	1 beep / 2s
OUT OF BYPASS VOLTAGE RANGE		1 beep / 2s
BYPASS FREQUENCY UNSTABLE	FU	1 beep / 2s
OVERCURRENT AT INPUT	01	1 beep / 2s
EEPROM ERROR	EE	1 beep / 2s

"EPO" MERGENCY POWER-OFF FUNCTION:

EPO function allows an immediate power off 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.

FAILURE	CODE	ICON
BUS START FAIL	**01**	
BUS OVER	**02**	
BUS UNDER	**03**	
INVERTER SOFT START FAIL	**11**	
INVERTER VOLTAGE HIGH	**12**	
INVERTER VOLTAGE LOW	**13**	
INVERTER OUTPUT SHORT	**14**	
BATT VOLTAGE TOO HIGH	**27**	
BATT VOLTAGE TOO LOW	**28**	
CHARGER OUTPUT SHORT	**2A**	
OVER TEMPERATURE	**41**	
OUTPUT OVERLOAD	**43**	
CHARGER FAILURE	**45**	
OVER INPUT CURRENT	**49**	

AUDIBLE ALARM BEEPS

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

9. TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE & 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 an exceptionally low charging level: Check batteries connection. Recharge batteries for 4-6 hours. If problem is not solved call technical service.
Batteries disconnected	Check batteries connection.
EPO active	Check EPO port on rear panel of UPS. If external switch is connected to EPO port, check external switch.
Over Temperature	Check if fans are working properly. Check if room temperature is in acceptable range. Disconnect noncritical equipment from UPS to reduce internal temperature. If problem is not solved call technical support.
 **Icons flash and** SF **text is shown**	AC Line and neutral are reversed. Correct the wrong connection and install the UPS again.
EEPROM Failure	Turn-off and power-off UPS. Restart UPS. If not solved call technical service.
ERROR CODES	**PROBABLE CAUSE & SOLUCION**
01 , 02 , 03	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 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 REPLACEMENT

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 25ºC. 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: - 25ºC to + 30ºC : RECHARGE EVERY 4 MONTHS / RECHARGE DURING 6 HOURS
STORAGE TEMPERATURE: + 30ºC to + 45ºC : RECHARGE EVERY 2 MONTHS / RECHARGE DURING 6 HOURS

BATTERY 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.

12. BATTERIES: RECHARGING

This UPS includes a powerful and modern battery charger which is connected to the AC input

Charger Configuration:
Maximum recharging current can be configured in the LCD frontal panel. Maximum current must be configured according to the capacity of the battery bank.

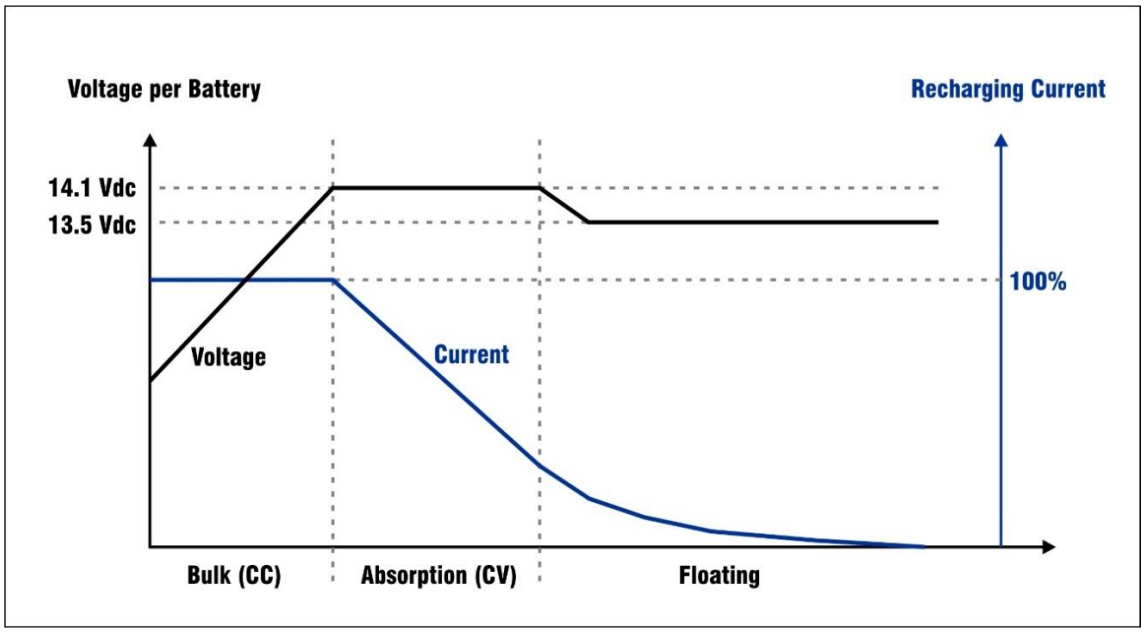
Maximum current must be between 10% and 20% of the total AH battery capacity.
For example, for a small 9AH battery bank, the minimum current should be 0.1C (about 0.9A). In this case, charger should be configured as 1A.
To get shorter recharging time current could be configured close to its maximum value 0.2C (1.8A). In this case, charger should be configured as 2A.

Recharging Algorithm
This UPS battery charger uses a 3 steps algorithm to care batteries.

1- Constant Current
During this stage charger injects a constant current meanwhile batteries increase their voltage. During this stage batteries recover up to 90% of their total capacity. This stage takes 60% of total recharging time.

2- Constant Voltage
When first step is finished charger provides stable voltage meanwhile current decreases slowly. The charging voltage for VRLA/AGM batterie is close to 2.35Vdc per cell (14.1 VDC per battery). In this stage batteries recover 100% of their capacity.

3- Floating
This is stage where batteries keep charged with 2.25VDC per cell (13.5VDC per battery)



TEMPERATURE COMPENSATION
Batteries should be recharged with a room temperature below 30ºC. In case temperature rises above 30ºC, charger decreases charging voltage to protect batteries as follows:

Over 30ºC:
-5mV/ºC per cell (-30mV/ºC per battery) during constant voltage stage
-3mV/ºC per cell (-18mV/ºC per battery) during floating stage

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 on 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.

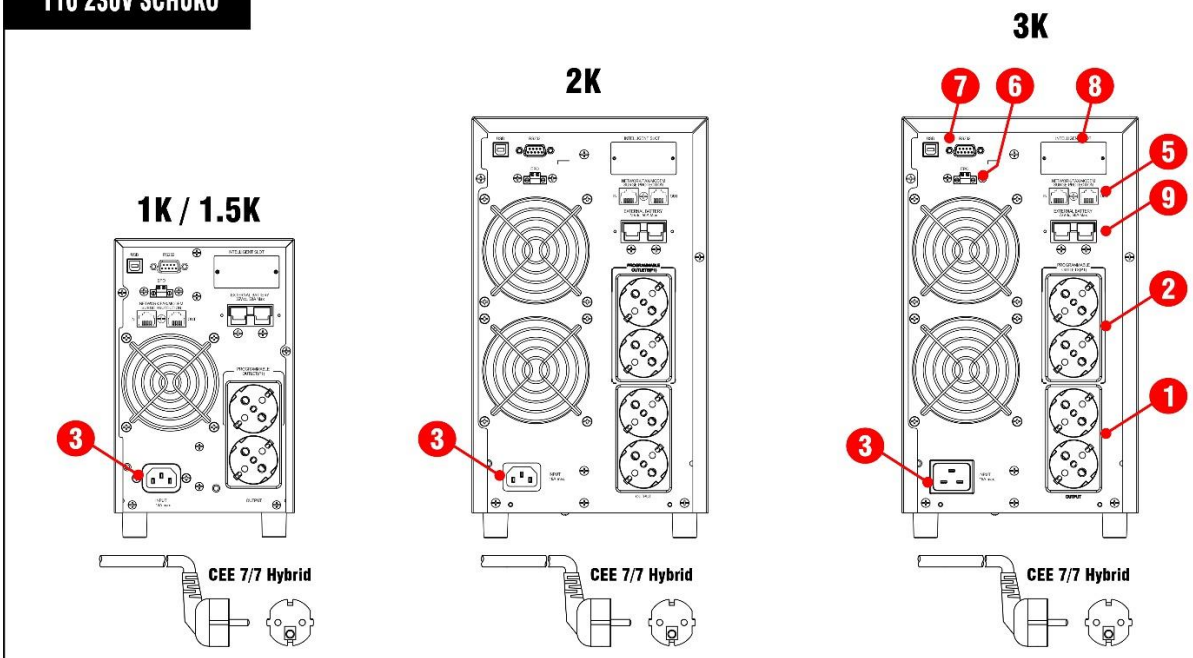
Limited Warranty

- 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.

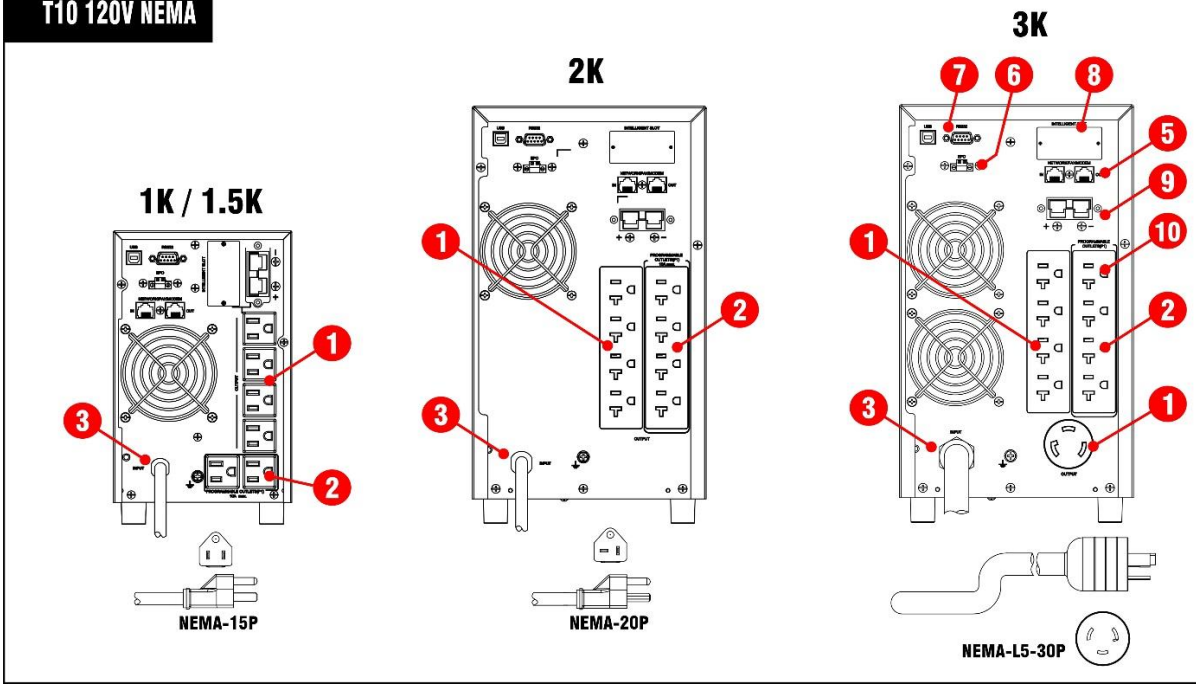
14. REAR PANEL

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

T10 230V SCHUKO



T10 120V NEMA



15. SPECIFICATIONS (1/2)

ONLINE - OPTIMA T10 (UL/CSA/CE)		1K	1.5K	2K	3K
Capacity / Capacidad Output PF / FP de Salida	120V (UL)	1000VA / 1000W 1,00	1500VA / 1450W 0,97	2000VA / 1930W 0,97	3000VA / 2880W 0,96
Capacity / Capacidad Output PF / FP de Salida	220V/230V	1000VA / 1000W 1,00	1500VA / 1500W 1,00	2000VA / 2000W 1,00	3000VA / 3000W 1,00
INPUT / ENTRADA					
Range / Rango - Vac	120V (UL)				
Range / Rango - Vac	220V/230V				
Frequency Input / Frecuencia de Entrada		50Hz / 60Hz autosensing / detección automática			
Frequency Range / Rango de Frecuencia		40 Hz - 70Hz			
Max. Amps / Corriente Max.	(normal mode) (120V UL)	13.2A (RMS)	13.2A (RMS)	17.6A (RMS)	26.4A (RMS)
Max. Amps / Corriente Max.	(normal mode) (230V)	7.6A (RMS)	11.0A (RMS)	15.3A (RMS)	17.6A (RMS)
Phase / Fases		Single phase with ground / (L, N, G)			
Power Factor / Factor de Potencia					
Input Current THDi / THDi de Corriente de Entrada					
Input Powercord / Cable de entrada		6 feet (1.83m) NEMA Plug			
OUTPUT / SALIDA					
Voltage / Voltaje AC	(120V UL)	(*N1) Model 120V: 100/110/115/120/127Vac			
Voltage / Voltaje AC	(220V/230V)	(*N1) Model 220V/230V: 200/208/220/230/240Vac			
Output Regulation / Rango de Salida:		+/-1% (all modes / en todos los modos de operación)			
Frequency / Frecuencia (Batt. Mode)		(*N2) 50 Hz +/- 0.1 Hz - 60Hz +/- 0.1 Hz			
Slew Rate / Seguimiento de Frecuencia		1 Hz / s			
Current Crest Ratio / Factor de Cresta					
Harmonic Distortion / Dist. Armónica (THDv)					
Dynamic Accuracy / Regulación Carga Variable		< +/- 5% in Online (variation 0%-100% & 100%-0% R Load) (online mode)			
Transient response / Respuesta ante Carga Variable		Variation 0%-100% or 100%-0%: 30ms, up to 90% of regulation - 60ms, up to 100% regulation			
AC to Inverter / Modo Online a modo Batery		0 ms			
Waveform / Forma de Onda		Pure Sinewave / Sinusoidal Pura			
DC component / Componente DC		100mV max. (no load / full load) (EN50091-3)			
BYPASS					
Internal Auto bypass / Modo Bypass Automático:		Default Input Range in BYPASS (Configurable): 120V: [85-132Vac] - 220V/230V: [170-264Vac]			
PROTECTION SYSTEMS / SISTEMAS DE PROTECCION					
Surge & Spikes Suppression / Supresión de Picos		(L-N, L-G, N-G) : > 1370 Joules (EN61000-4-5)			
RJ45 Surge Suppression / Supresión picos RJ45		IN/OUT RJ45 socket surge protected / Tomas RJ45 protegidas contra picos			
Output Short-Circuits / Cortocircuitos a la Salida (Online & Battery Mode)		Electronic inverter shortcircuit protection: / Protección contra cortocircuitos en la salida: Output current >280% of nominal current during 100 ms. UPS goes to Fault Mode / Corriente de Salida >280% de corriente nominal por 100 ms. UPS pasa a Modo Falla			
Noise Protection / Protección contra ruido eléctrico		Input filter / Filtro de entrada (TVSS EMI/RFI)			
AC Input Current / Sobre-Corriente de Entrada AC		Input breaker or fuse / Disyuntor o fusible de entrada			
Battery overcurrent / Sobrecorriente de baterías		Fuse protection for battery line / Protección por fusible en línea interna de baterías (80A)			
		7s - 10s			
EFFICIENCY / EFICIENCIA					
Eco Mode		(100% LOAD: 97%) - (75% LOAD: 96%) - (50% LOAD: 96%) - (25% LOAD: 94%)			
AC Mode / Modo AC (Online)		(100% LOAD: 91%) - (75% LOAD: 91%) - (50% LOAD: 90%) - (25% LOAD: 89%)			
Battery Mode / Modo Batería		(100% LOAD: 90%) - (75% LOAD: 90%) - (50% LOAD: 89%) - (25% LOAD: 88%)			
Inverter Efficiency / Eficiencia Inversor (100%)		(100% LOAD: 97%)			
Max. Internal Loss / Pérdidas internas máx. (BTU)		307	460	546	818
OVERLOAD/ SOBRECARGA					
AC Mode / Modo Normal (to Bypass)		[100%-110%: Warning] [110%-130%: 5min] [130%-140%: 30s] [>140%: 2s]			
Battery Mode / Modo Batería (to Cut-OFF)		[100%-110%: Warning] [110%-130%: 2min] [130%-140%: 10s] [>140%: 2s]			
Bypass Mode / Modo Bypass (to Cut-OFF)		[100%-110%: Warn.] [110%-120%: 30min] [120%-130%: 10min] [>130%: 1min]			
BATTERIES / BATERIAS					
Technology / Tecnología		YUASA or CSB: Sealed Lead Acid VRLA-AGM / Sellada Sin Mantenimiento VRLA-AGM			
Qty & Type / Cantidad&Tipo		3 x 12V-7AH	3 x 12V-9AH	6 x 12V-7AH	6 x 12V-9AH
Charging VDC / Voltaje del cargador (Floating)		41.1 VDC +/- 1%	41.1 VDC +/- 1%	82.1 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 (*N3)			
Shutdown battery Voltage / Voltaje DC Apagado		10.0 Vdc per battery typical (*N4)			
Charging Amps / Corriente de Carga		Configurable 2A to 8A. // (0.1C min / 0.2C recommended / 0.3C max.)			
Batteries charger / Cargador de baterías		3 steps technology according to DIN41773 / Tecnología de 3 etapas según DIN41773 (Constant Current / Equalizing / Floating)			
Charging Compensation /Compensación Recarga		>30ºC : -5mV/ºC per cell (Equalization) / -3mV per cell (Floating)			

15. SPECIFICATIONS (2/2)

ONLINE - OPTIMA T10 (UL/CSA/CE)	1K	1.5K	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, Diagnóstico			
ALARM / ALARMAS				
Beep Alarms / Alarma Sonora:	(Batt. Mode: 1 beep/5s)-(Low batt.: 1 beep/s)-(Overload: 2 beep/s)-(Failure: Continuous)			
OUTLETS: QTY & TYPE / SALIDAS: CANTIDAD Y TIPO				
UPS Model 120Vac (UL) - Total Outlets	6	8	8	9
Std. Outlets / Salidas Estándar (120Vac)	NEMA5-15R*4	NEMA5-15R*4	NEMA5-20R*4	NEMA5-20R*4 + L5-30R*1
Prog. Outlets / Salidas Prog. (120Vac) (*N5)	NEMA5-15R*2	NEMA5-15R*2	NEMA5-20R*4	NEMA5-20R*4
Input / Entrada (120Vac)	NEMA5-15P	NEMA5-15P	NEMA5-20P	L5-30P
UPS Model 230Vac / Schuko - Total Outlets	2	2	4	4
Std. Outlets / Salidas Estándar (230Vac)	CEE*(Schuko)*1	CEE*(Schuko)*1	CEE*(Schuko)*2	CEE*(Schuko)*2
Prog. Outlets / Salidas Prog. (230Vac) (*N5)	CEE*(Schuko)*1	CEE*(Schuko)*1	CEE*(Schuko)*2	CEE*(Schuko)*2
Input / Entrada (230Vac)	IEC C14 + Schuko plug		IEC C20 + Schuko plug	
PHYSICAL / FISICAS: UPS				
W*H*D / Ancho * Altura * Profundidad (mm)	397x145x220		421x190x318	
Net Weight / Peso Neto (kgs)	14	15	23	28
PHYSICAL / FISICAS: External Battery Pack / Paquete de Baterías Externas				
W*H*D / Ancho*Altura*Profundidad (mm)	397x145x220		421x190x318	
Net Weight / Peso Neto (kgs)	20	21,2	38	40,4
UPS PACKING / EMPAQUE UPS				
Unit Carton W*H*D (mm)	472x230x325		560x320x460	
Unit Gross Weight / Peso Bruto (kgs)	15	16	24	29
Half Pallet / Medio Pallet (cm : pcs)	(120*100*101): 30pcs		(115*72*104): 12pcs	
Full Pallet / Pallet Completo (cm : pcs)	(112*100*195): 50pcs		(115*72*216): 24pcs	
Container (FCL20' / FCL40')	500pcs / 1050pcs		240pcs / 504pcs	
EXT BATT PACKING / EMPAQUE BATERIAS EXTERNAS				
Unit Carton W*H*D (mm)	472x230x325		560x320x460	
Gross Weight / Peso Bruto (kgs)	21	22,2	40	42,4
OPERATIONAL CONDITIONS / CONDICIONES DE OPERACIÓN				
Temperature / Temperaturas (IEC-62040-3)	Operation / En Operación: (-0 to +40ºC)			
Storage Temperature / Temperatura Almacenaje	UPS (w/o batteries): -25 to +55 ºC / UPS (with batteries): (-20 to +50ºC)			
Humidity / Humedad Relativa (IEC-62040-3)	< 95 % RH (non-condensing / no condensante)			
Audible Noise / Ruido Acústico (ISO 7779)				
Protecting Coating / Tropicalizado de Tarjetas	Yes / Si			
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)			
SAFETY & STANDARDS / NORMATIVAS Y ESTANDARES				
CE Directives (for 220V & 230V models)	73 / 23 & 93 / 68 (LV Safety) and 89 / 336 (EMC)			
UL & CSA (for 120V models)	UL1778 & CSA C22.2 (certified by cTÜVus)			
UPS General Safety / Seguridad General	IEC 62040 - 1			
UPS EMC / Compatibilidad. Electromag.	IEC 62040 - 2			
UPS Tests / Procedimiento Pruebas UPS	IEC 62040 - 3			
ESD / RS / EFT / Surge / CS / F. Mag. Field	EN 61000-4-2 & 4-3 & 4-4 & 4-5 & 4-6 & 4-8 & 4-11			
Low Frequency Signals	IEC / EN 61000 - 2 - 2			
Degree of protection / Grado de Protección	IP21			
Conduction & Radiation	FCC Part 15 Class A ; IEC / EN 62040-2 (Cat 2)			
Safety / Seguridad	CE - IEC/EN 62040-1			
Quality, Enviroment, Others	RoHS, ISO9001 & ISO14001			
Transportation / Transporte	IEC 60068-2-32 (Drop test) / IEC 60068-2-64 (Vibration) / IEC 60068-2-27 (Shock test)			
COMMUNICATION / COMUNICACION				
Serial comm. / Comunicación serial	RS232 & USB (HID compatible)			
Software	Windows family; Linux; Mac OS; VMWare			
SNMP Intelligent Port:	LAN Card SNMP type - optional / Comunicación con LAN mediante SNMP opcional AS400 Interface (optional comm. Card) / Interfaz con AS400 (tarjeta opcional)			

Tech. specs can be modified to comply to special requirements or without further notice / Las especif. pueden adaptarse a proyectos especiales o 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): Freq. Conversion mode allows to set output frequency at constant value: 50Hz or 60Hz / El modo de Conversión de Frec. permite fijar la salida a 50 o 60Hz

(*N3): Recharing time based on previous 10min to 20min full discharging cycles. Tiempo de recarga basado en ciclos previos de descarga profunda de 10 a 20min.

(*N4): Shutdown batt. voltage depends of operating conditions (load & runtime) / Voltaje de corte de bat. depende de las condiciones operativas (carga y runtime)

(*N5): Backup time for programable outlets can be configurable (in minutes) / Las salidas programables pueden configurarse en minutos

** 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 100Vac

NOTES

NOTES

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