

USER MANUAL: OPTIMA-33-RT10

208/120V: 5K/10K/20K

400/230V: 10K/15K/20K

3-PHASE INPUT / 3-PHASE OUTPUT

3-PHASE INPUT / CONFIGURABLE 1-PHASE OUTPUT

ONLINE DOBLE-CONVERSION UPS

MODELS: 400/230V AND 208/120V



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1. GENERAL SAFETY INSTRUCTIONS – SAFETY, QUALITY & PERFORMANCE STANDARDS

WARNING: Strictly follow all safety warnings and instructions. Read and understand this manual before starting or operating the product. Only qualified technicians may start, operate, and maintain this product. Keep this manual for future reference.

The UPS manufacturer or distributor is not responsible for accidents caused by lack of knowledge or negligence during installation, startup, or maintenance. The manufacturer or distributor is also not liable for damage resulting from misuse or improper installation.

SAFETY & USAGE:



WARNING – RISK OF ELECTRIC SHOCK:

This product operates at hazardous voltages and must be installed, operated, and maintained ONLY by qualified technicians trained to service this type of equipment. Service personnel MUST fully understand all electrical hazards associated with this product. The enclosure is secured with screws. If you are not a qualified technician, do not install, operate, or repair this product.

CAUTION: Hazardous voltages are ALWAYS present inside the equipment due to the batteries, EVEN when the UPS is turned off and disconnected from AC power.

CAUTION: Install this product according to the instructions in this manual. The manufacturer is not responsible for personal injury or property damage resulting from improper installation or use.

CAUTION: This product is designed for safe and reliable operation. However, due to its electrical nature, all instructions must be read carefully.

WARNING: This product is designed for indoor use and must be protected from water, direct sunlight, dust, and extreme temperatures. Do not use it outdoors or near sources of moisture or heat.

WARNING: Do not place objects on the UPS, apply force to it, or block its ventilation openings.

WARNING: Connect this UPS only to an electrical supply compatible with the selected model. Refer to the rating label for the UPS electrical specifications. DO NOT connect the UPS input to any of its own output outlets, as this may permanently damage the unit.

WARNING: Do not connect AC motor-driven equipment unless the UPS has been sized according to its inrush current rather than its average current. Motor inrush current may overload the UPS. Size the UPS according to peak power consumption, not average consumption.

WARNING: In an emergency, disconnect the UPS from AC power and turn it off. Then contact technical support.

ENVIRONMENTAL PROTECTION INFORMATION – UPS SERVICING:

This UPS and its batteries contain components that may be hazardous to the environment, including electronic boards and other electronic components. Removed components must be taken to authorized collection and disposal facilities.

NOTICE TO EUROPEAN UNION CUSTOMERS: DISPOSAL OF OLD APPLIANCES



This product is supplied by an environmentally responsible manufacturer that complies with the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC. The crossed-out wheeled-bin symbol shown on the left indicates that this product should be recycled whenever possible. At the end of its service life, recycle this product through an authorized recycling facility. Do not dispose of this product as unsorted municipal waste. Follow all local regulations for the disposal of waste electrical and electronic equipment (WEEE).

TRANSPORTATION & STORAGE: WARNINGS & RECOMMENDATIONS

WARNING: Transport this equipment upright and only in its original packaging to protect it from shocks and impacts.

WARNING: Store this equipment upright, in its normal operating position, in a cool, dry indoor location.

WARNING: Before storage, charge the batteries for at least 8 to 10 hours.

WARNING: During storage, periodically recharge the UPS batteries as specified in the Battery Care section.

SAFETY STANDARDS / QUALITY AND PERFORMANCE

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: Radiated & Conducted	IEC/EN 62040-2 (Cat 3)
Low Freq. Conducted Disturbances & Signals:	IEC/EN 61000-2-2 10V
Electrostatic discharge immunity Test:	IEC/EN 61000-4-2 (CD Level 2 / AD Level 3)
Radiated radio Frequency immunity:	IEC/EN 61000-4-3 (Level 3)
Electrical Fast Transient / burst immunity:	IEC/EN 61000-4-4 (Level 3)
Surge immunity:	IEC/EN 61000-4-5 (Level 3)
Conducted Immunity:	IEC/EN 61000-4-6 (Level 3)
Power frequency magnetic field immunity:	IEC/EN 61000-4-8 (Level 3)
CE	CE compliant
IP PROTECTION	IP20 (static)
QUALITY MANAGEMENT:	Manufactured under: ISO 9001 : 2000
ENVIRONMENTAL MANAGEMENT:	Manufactured under: ISO 14001 : 2004
TRANSPORTATION:	ETS 300019-2-2, Class 2.3

WARNING: Any modification to this product, or its use as part of a more complex system, that is not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment. It may also affect product performance and regulatory compliance. X MART is not responsible for modifications made to the product or its accessories after manufacture.

WARNING: This is a Category C3 UPS. This category includes UPS systems with an output current exceeding 16 A and intended for use in secondary environments. Such UPS systems are suitable for commercial or industrial installations located at least 30 m from buildings classified as primary environments. Category C3 UPS systems must comply with Category C3 emission limits and the immunity requirements listed in the table above.

WARNING: This product is intended for commercial and industrial applications in secondary environments. Installation restrictions or additional measures may be required to prevent electromagnetic disturbances.

DEFINITIONS:

Primary Environments: Sites connected directly to the public low-voltage power supply without intermediate transformers, such as residential buildings and small businesses without dedicated transformers.

Secondary Environments: Sites not connected directly to the public low-voltage power supply, such as industrial facilities and large businesses supplied through dedicated transformers.

2.- PRODUCT DESCRIPTION & AVAILABLE MODELS

UPS DESCRIPTION

This is an **ONLINE UPS (Uninterruptible Power Supply)** with **three-phase input and three-phase output, configurable for single-phase output on supported models**. Its classification according to EN 62040-3, "Classification of UPS by Performance," is:

V	F	I	-	S	S	-	1	1	1
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V F I (Output dependency):

The output voltage and frequency are independent of the input voltage and frequency.

S S (Output Waveform)

The output waveform is sinusoidal in both normal and battery modes.

1 1 1 (Output Dynamic Performance)

Dynamic performance Class 1 for operating-mode changes, linear step loads, and reference nonlinear step loads.

Operating-mode changes: 1 – Linear step loads: 1 – 1: Reference nonlinear step load.

FEATURES

- Online technology with IGBT-based inverter and rectifier stages using PWM modulation.
- Dual input: Main UPS input and auxiliary bypass input.
- Conformal coating on internal circuit boards and components protects against moisture and corrosive contaminants, helping ensure stable performance and extend service life when all technical requirements are met.
- Versatile touchscreen with direct access to configuration and operation menus.
- Spike suppression circuits, based on MOV technology.
- Electromagnetic Interference (EMI) filtering system.
- 100% compatible with power generators.

THREE-PHASE – SINGLE-PHASE VERSION

UPS units in this family are factory-configured for three-phase input and three-phase output (3-3). Supported models can be reconfigured for three-phase input and single-phase output (3-1), except the OPTIMA-33-RT10 20K-208-NB. This change must be made only by XSMART technical personnel, as improper configuration may cause serious damage not covered by the warranty.

AVAILABLE MODELS:

For 208/120V

Transformerless UPS units designed for three-phase input and three-phase output, configurable for single-phase output except for the **OPTIMA-33-RT10 20K-208-NB**, in 208 V phase-to-phase / 120 V phase-to-neutral systems. Available models:

OPTIMA-33-RT10 05K-208-NB:	5KVA/5KW One electronic module without internal batteries. External batteries required.
OPTIMA-33-RT10 10K-208-NB:	10KVA/10KW One electronic module without internal batteries. External batteries required.
OPTIMA-33-RT10 20K-208-NB:	20KVA/20KW One electronic module without internal batteries. External batteries required.

For 400/230V:

Transformerless UPS units designed for three-phase input and three-phase output, configurable for single-phase output, in 400 V phase-to-phase / 230 V phase-to-neutral systems. Available models:

OPTIMA-33-RT10 10K-400-NB:	10KVA/10KW One electronic module without internal batteries. External batteries required.
OPTIMA-33-RT10 15K-400-NB:	15KVA/15KW One electronic module without internal batteries. External batteries required.
OPTIMA-33-RT10 20K-400-NB:	20KVA/20KW One electronic module without internal batteries. External batteries required.

BATTERIES: CARE AND MAINTENANCE

- Only high-quality batteries are used in our equipment.
- Regardless of their technology, batteries lose capacity over time and with use.
- The expected battery service life in our ONLINE UPS systems is 4 to 5 years under optimal operating conditions and at ambient temperatures below 25°C. Service life may decrease significantly at higher temperatures or under unfavorable operating conditions.
- Battery service life may also be affected by operating conditions, including the quality of the AC power supply and the number and type of loads connected to the UPS.
- Batteries should be checked periodically to verify their capacity and ensure adequate backup time.

- FOR LONGER BATTERY LIFE, IT IS RECOMMENDED TO PERFORM A DEEP DISCHARGE EVERY 2 OR 3 MONTHS.
- IF THE UPS IS STORED FOR AN EXTENDED PERIOD, RECHARGE THE BATTERIES ACCORDING TO THE FOLLOWING TABLE:

Storage Temperature	Recharge Frequency	Recharge Duration
-25°C to 40°C	Every 3 months	1 to 2 hours
40°C to 45°C	Every 2 months	1 to 2 hours

XBAT: EXTERNAL BATTERY PACK

The **OPTIMA-33-RT10** UPS family supports two external battery module models, as these UPS units do not include internal batteries.

Available Models:**XBAT-OPT33-RT-2x120V-H (+/- 120VDC)**

Module equipped with 20 batteries wired in series with a center tap: ± 120 VDC.

Compatible with the following models:

- **OPTIMA-33-RT10-05K-208-NB**
- **OPTIMA-33-RT10-10K-208-NB**
- **OPTIMA-33-RT10-10K-400-NB**
- **OPTIMA-33-RT10-15K-400-NB**
- **OPTIMA-33-RT10-20K-400-NB**

XBAT-OPT33-RT-2x120V-V (+/- 120VDC)

Module equipped with 20 batteries wired in series with a center tap: ± 120 VDC.

Compatible with the following model:

- **OPTIMA-33-RT10-20K-208-NB**

Note:

Battery module connection cables vary by UPS model. Ensure that the correct cable is used for the selected model. Refer to the corresponding connection diagram for details.

WARNING

External battery packs (XBAT) designed for OPTIMA-33-RT10 models may NOT be compatible with other OPTIMA UPS models. To prevent damage, ensure that the XBAT DC voltage is compatible with the UPS.

PARTS ID, REAR PANEL & TERMINAL BLOCKS

A.-Color Touchscreen

1.-  (Note 1)

2.- RS232

3.- USB

4.- XBAT DC Connector

5.- EPO (Emergency Stop)

6.- External MBS Port

7.- Smart Port

8.- Current Sharing Port (Note 2)

9.- Parallel Control Port (Note 2)

10.- Output Grounding Terminal

11.- AC Output Terminal Block

12.- Bypass Input Terminal Block

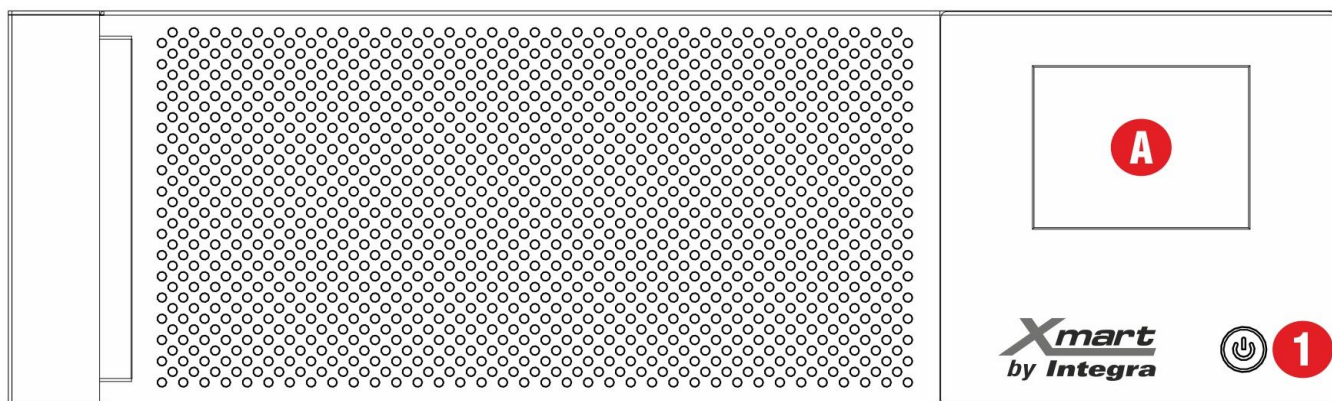
13.- AC Input Terminal Block

14.- Input Grounding Terminal

Note 1: Button used to turn on the UPS touchscreen. For more information, see “COLD START POWER-ON PROCEDURE – SINGLE UPS BATTERY MODE” in Section 10. **STARTUP: SINGLE UPS.**

Note 2: For parallel installations

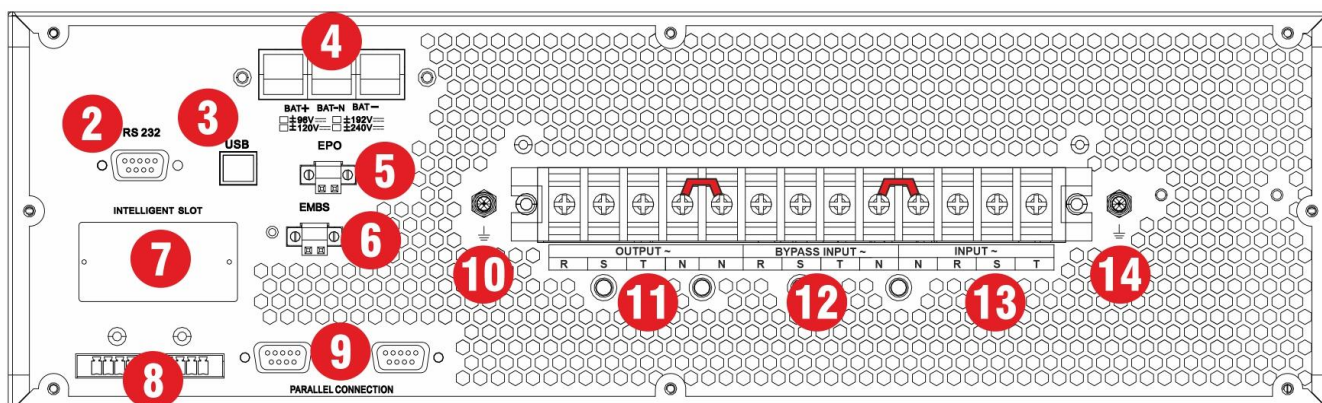
FRONT VIEW – ALL MODELS



REAR VIEW – MODELS:

- OPTIMA-33-RT10-05K-208-NB

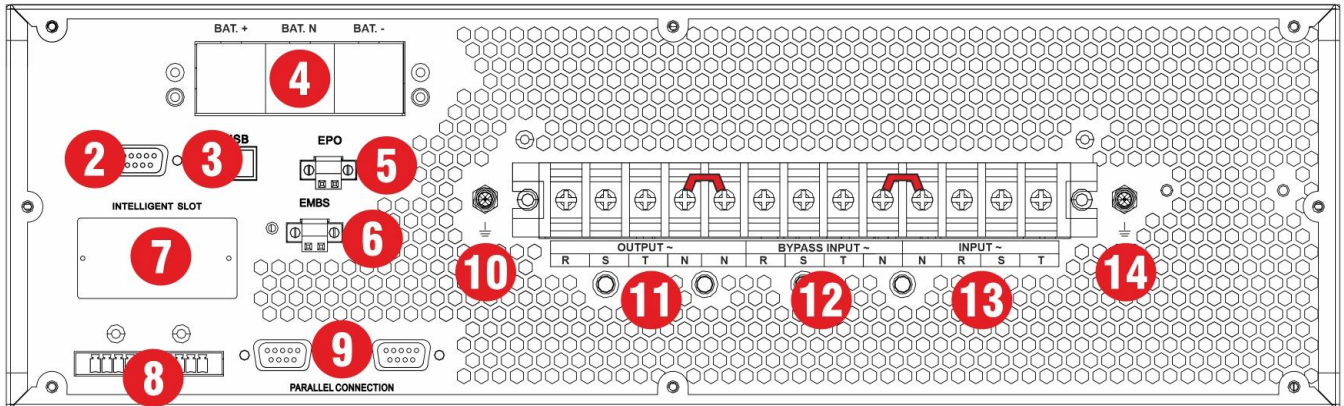
- OPTIMA-33-RT10-10K-400-NB



Two jumpers between the neutral “N” terminals should be factory-installed on the terminal block. If either jumper is missing when the UPS is unpacked, the installer must install it. The missing jumper should be included in the equipment packaging.

REAR VIEW – MODELS:

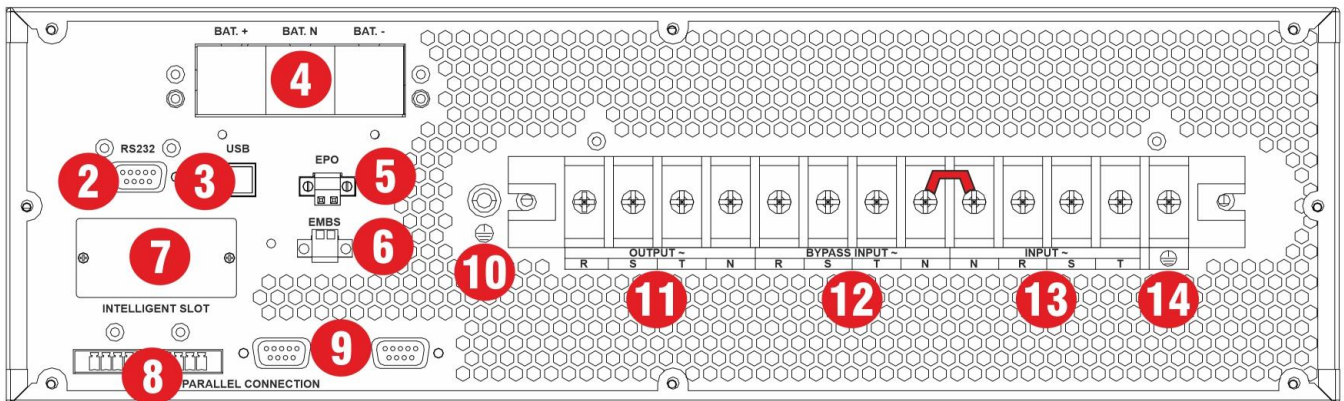
- OPTIMA-33-RT10-10K-208-NB
- OPTIMA-33-RT10-15K-400-NB
- OPTIMA-33-RT10-20K-400-NB



Two jumpers between the neutral “N” terminals should be factory-installed on the terminal block. If either jumper is missing when the UPS is unpacked, the installer must install it. The missing jumper should be included in the equipment packaging.

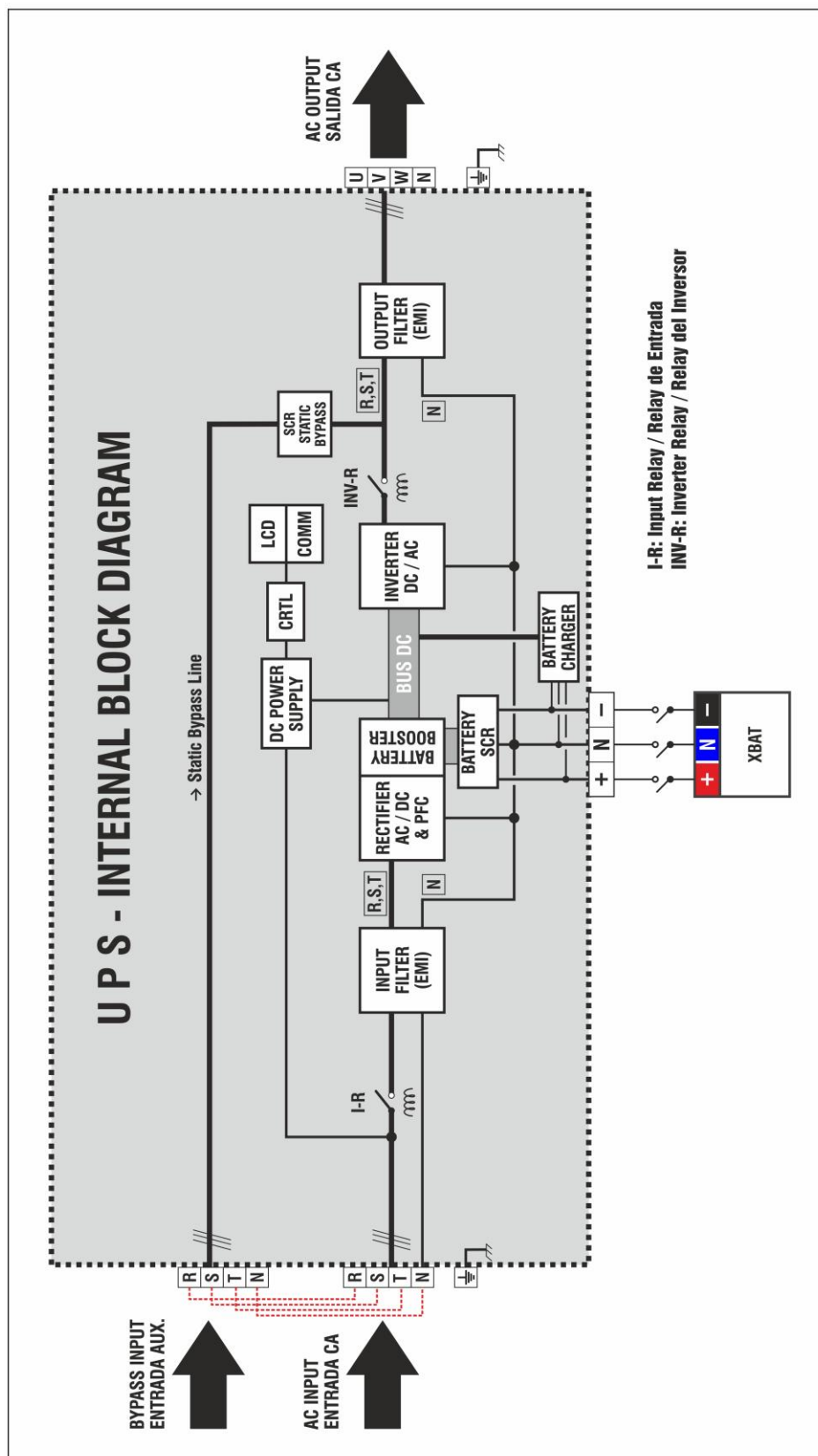
REAR VIEW – MODEL:

- OPTIMA-33-RT10-20K-208-NB



A jumper between the neutral “N” terminals should be factory-installed on the terminal block. If the jumper is missing when the UPS is unpacked, the installer must install it. The missing jumper should be included in the equipment packaging.

3.- INTERNAL BLOCK DIAGRAM: OPTIMA-33-RT10



4.- OPERATING PRINCIPLES AND MODES

This ONLINE double-conversion UPS is designed to provide clean, uninterrupted, high-quality power to protect your equipment and valuable data. Its output waveform is a pure sine wave, equivalent to the utility power supply.

Depending on the condition of the input power and the UPS configuration, the unit may operate in different modes, as described in this section. This UPS can operate as a standalone unit or as part of a parallel system of up to 4 units, as explained below:

SINGLE AND PARALLEL OPERATION

This UPS can operate as a standalone unit or in a parallel system of up to 4 units. In standalone operation, one UPS supplies the entire output power.

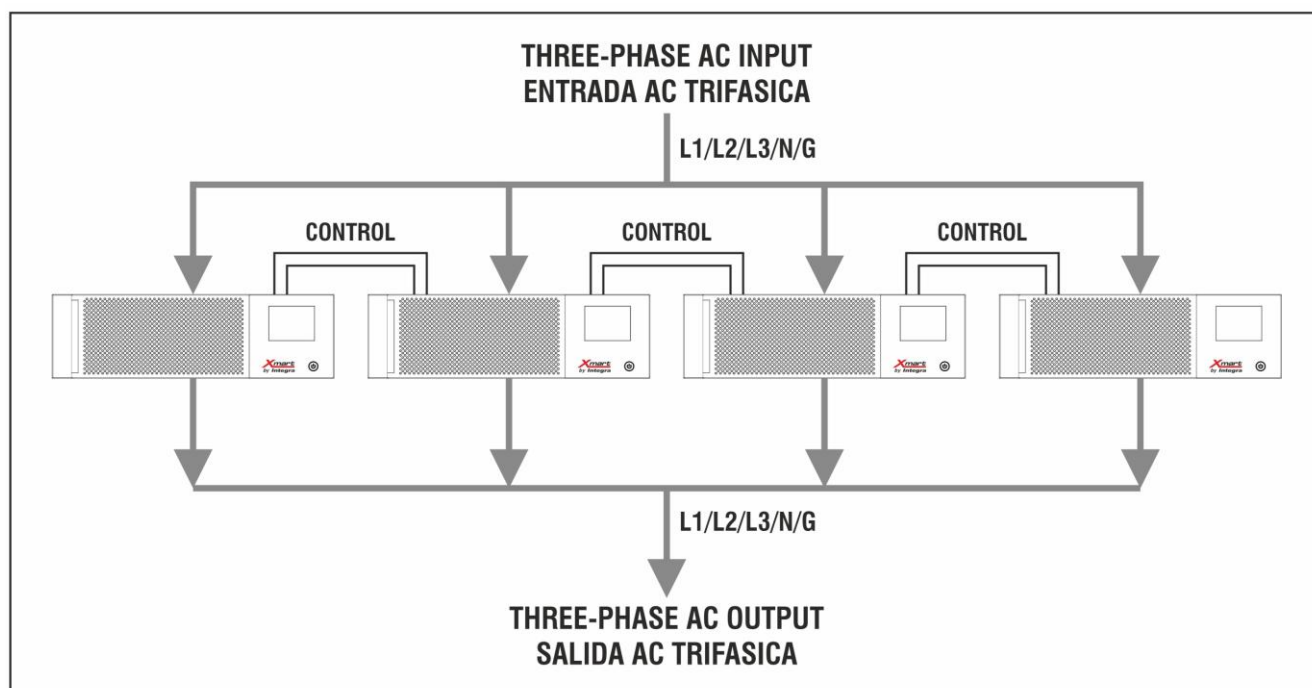
In parallel operation, up to 3 UPS units share the load. The AC inputs of all units are connected in parallel, and their AC outputs are also connected in parallel.

Parallel operation provides two main advantages:

- * **Progressive Growth:** System capacity can be increased by adding UPS units in parallel.
- * **Increased Reliability:** If one UPS fails, the remaining units may continue supplying the load.

Before connecting UPS units in parallel, consult XMART to confirm compatibility. All units must have the same model, power rating, and compatible firmware.

The diagram below shows a parallel system with three-phase UPS output. Parallel connections for single-phase output are described in a separate manual.



OPERATION MODES

ONLINE Mode (Also Known as NORMAL Mode or AC Mode)

If the AC input is within the configured acceptable range and the UPS is started using the standard energizing and power-on procedure, it enters ONLINE mode. In this mode, the inverter supplies the UPS output.

BATTERY Mode (INVERTER Mode)

While operating in ONLINE mode, if the AC input voltage or frequency moves outside the acceptable range, the UPS switches to BATTERY mode and uses battery power to supply its output. Transfer from ONLINE mode to BATTERY mode is seamless, with zero transfer time (0ms). The UPS remains in this mode until the stored battery energy is depleted or the AC input returns to the acceptable range.

ECO Mode (Power Saving)

This UPS includes an ECO power-saving mode that improves efficiency by reducing inverter-stage losses. ECO mode is disabled by default and may be enabled through the configuration menu. Do NOT enable ECO mode unless its advantages and limitations are fully understood. In this mode, the AC input supplies the output directly through the internal bypass line while the inverter remains off. The UPS stays in ECO mode while the input voltage and frequency remain within the configured ECO range. Typical transfer time between ECO mode and ONLINE or BATTERY mode is approximately 4ms. ECO mode is incompatible with parallel operation and must not be enabled on any unit in a parallel system.

BYPASS Mode

The UPS is factory-configured with the BYPASS function enabled. Once energized and after completing its self-diagnostics, the UPS can supply its output directly from the bypass input through the internal bypass line. It remains in BYPASS mode until it is turned on using the standard procedure, after which it enters ONLINE mode. BYPASS mode may be disabled through the configuration menu; when disabled, the UPS enters STANDBY mode whenever bypass operation would otherwise be required. The UPS remains in BYPASS mode while the bypass input voltage and frequency stay within the configured range. With the BYPASS function enabled, this mode is activated under the following conditions:

- When the UPS is energized but has not been turned on using the standard procedure.
- When an output overload causes the UPS to switch automatically to BYPASS mode to protect the inverter.
- When the external MBS switch is activated while connected to the MBS port.
- When the UPS detects an internal fault and switches to BYPASS mode to keep the output powered from the input.

STANDBY Mode

When BYPASS mode is disabled and bypass operation is required, the UPS enters STANDBY mode. In this mode, the outputs are turned off while the screen remains illuminated, awaiting operator action. The UPS also enters STANDBY mode when energized with the BYPASS function disabled.

Conversion of Frequency Mode (CVCF)

This UPS offers a sophisticated function that allows setting the output frequency value, even if it is different from the input frequency. For example, a UPS operating in a 60Hz system can generate its output at 50Hz or vice versa.

This function is configured through the configuration menu available on the LCD panel. Refer to the configuration section for details.

IMPORTANT:

CVCF (frequency conversion) function is incompatible with BYPASS mode, so when frequency conversion function is activated, UPS is not allowed to switch to BYPASS mode when bypass is required. The reason is that if a UPS is supplied with a 50Hz signal and is configured to generate its output at 60Hz, it is implicitly being told that the only acceptable output is one supplied at 60Hz. If BYPASS mode were activated, the 50Hz input would be connected to the output, providing a frequency different from what is configured in the CVCF function. Under these circumstances, if BYPASS mode is forced, the UPS will turn off its outputs.

WARNING Mode

Under certain abnormal circumstances, UPS displays a warning message on screen and activates an intermittent audible alarm. UPS typically remains in online mode in the presence of alarms.

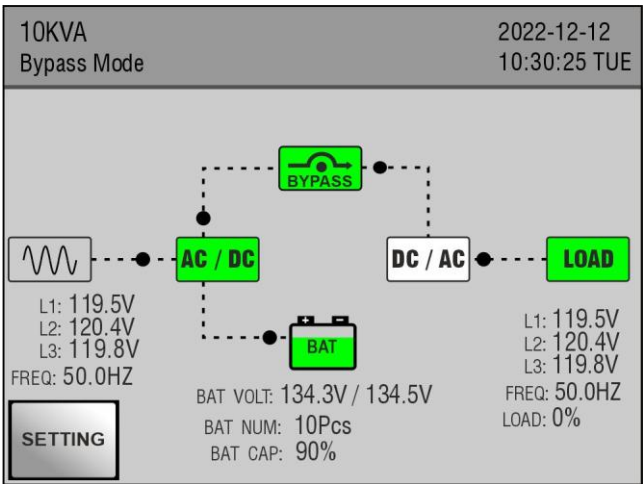
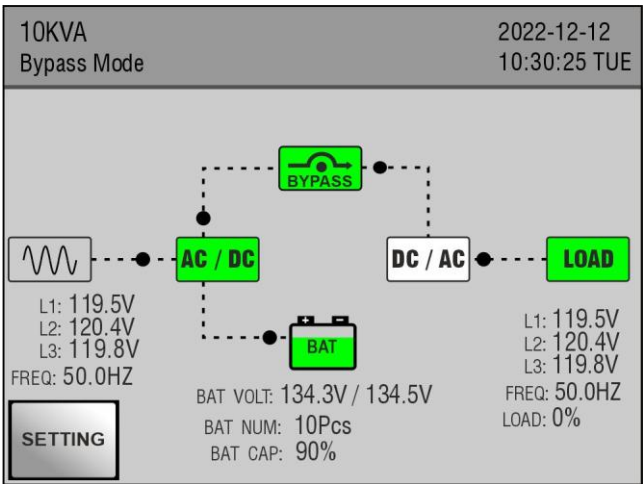
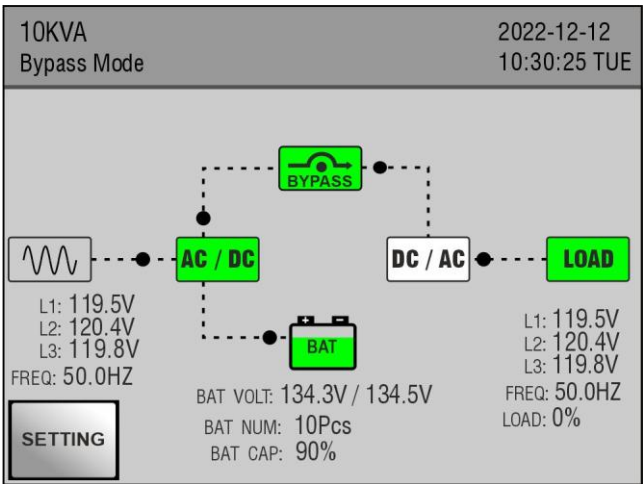
FAULT Mode

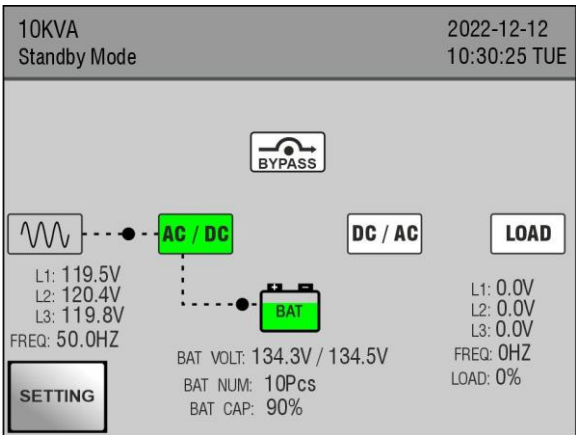
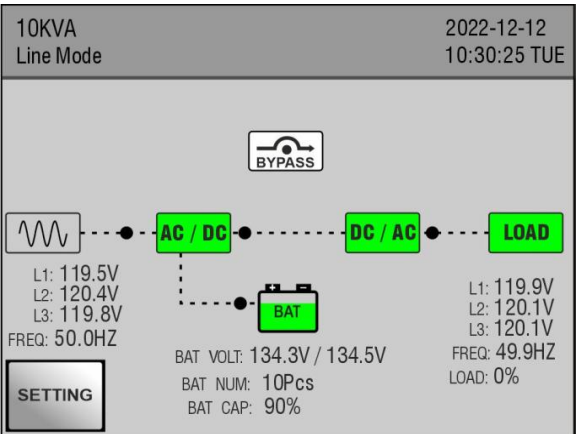
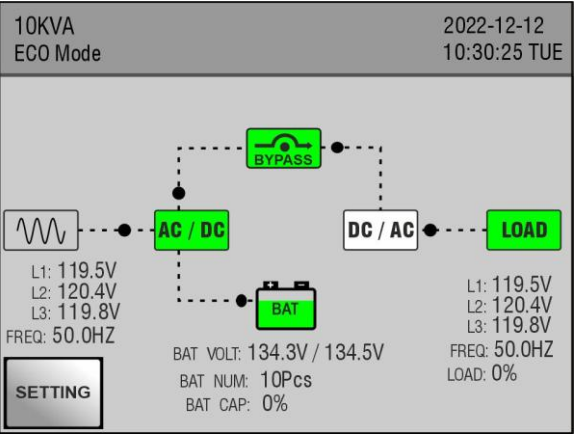
If a significant problem is detected within or outside the UPS, it enters error mode, displaying an error message on the screen and activating a continuous audible alarm. The UPS typically switches to BYPASS mode.

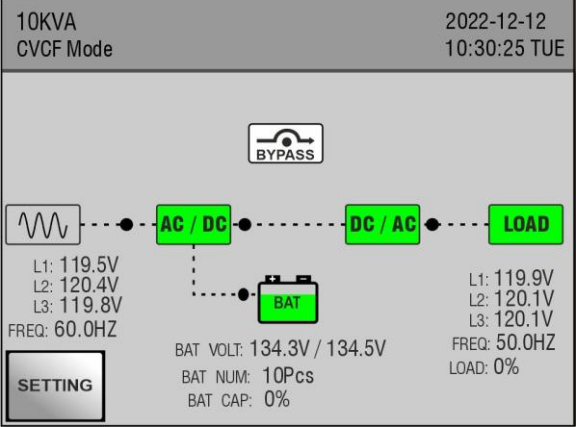
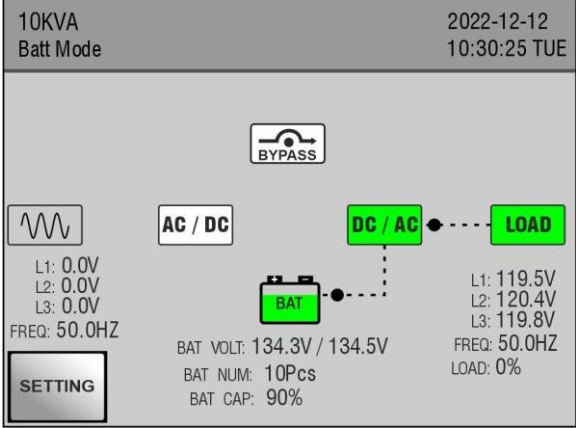
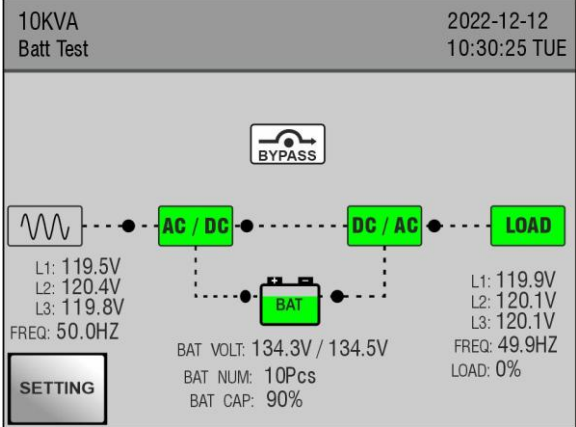
SCREENS BY OPERATING MODE

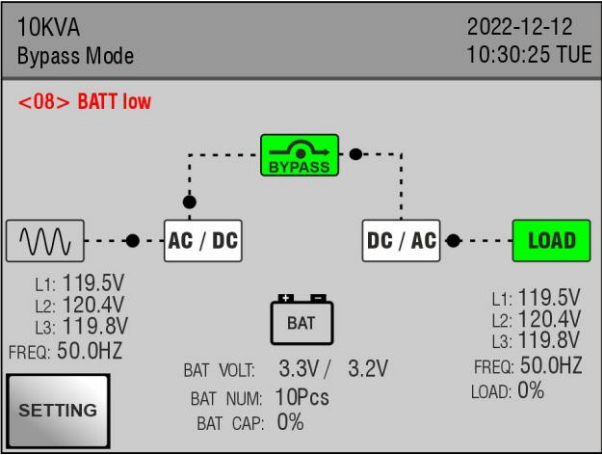
The UPS displays different screens according to its current operating mode, as described below:

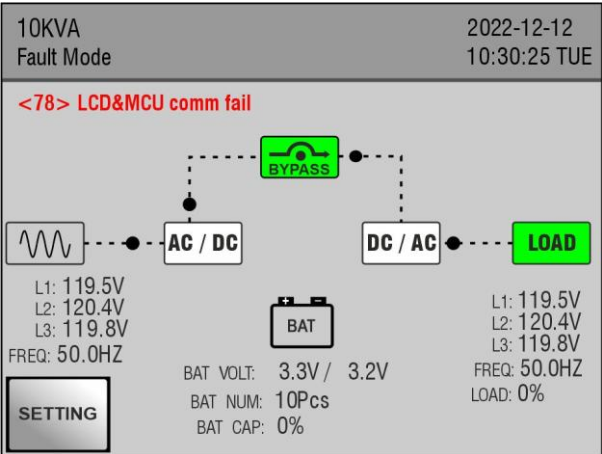
OPERATION MODES

POWER-ON	<table> <tr> <td data-bbox="383 521 534 607">Description</td><td data-bbox="534 521 1458 607">When the UPS is properly installed and energized, the screen turns on and briefly indicates that the unit is performing a self-diagnostic test before entering the applicable operating mode.</td></tr> <tr> <td data-bbox="383 607 534 1137">Screen</td><td data-bbox="534 607 1458 1137">  </td></tr> </table>	Description	When the UPS is properly installed and energized, the screen turns on and briefly indicates that the unit is performing a self-diagnostic test before entering the applicable operating mode.	Screen	
Description	When the UPS is properly installed and energized, the screen turns on and briefly indicates that the unit is performing a self-diagnostic test before entering the applicable operating mode.				
Screen					
BYPASS	<table> <tr> <td data-bbox="383 1178 534 1301">Description</td><td data-bbox="534 1178 1458 1301">After initialization, the UPS enters BYPASS mode and waits to be started. It also enters BYPASS mode when an abnormal condition prevents ONLINE operation or when the operator turns off the UPS.</td></tr> <tr> <td data-bbox="383 1301 534 1832">Screen</td><td data-bbox="534 1301 1458 1832">  </td></tr> </table>	Description	After initialization, the UPS enters BYPASS mode and waits to be started. It also enters BYPASS mode when an abnormal condition prevents ONLINE operation or when the operator turns off the UPS.	Screen	
Description	After initialization, the UPS enters BYPASS mode and waits to be started. It also enters BYPASS mode when an abnormal condition prevents ONLINE operation or when the operator turns off the UPS.				
Screen					

STANDBY (UPS energized, bypass disabled & output turned off)	Description When BYPASS mode is disabled and bypass operation is required, the UPS enters STANDBY mode, turns off its outputs, and waits until ONLINE operation can resume. Screen 
LINE MODE (AC MODE, ONLINE MODE)	Description After the UPS is started and the input is within the acceptable range, it enters ONLINE mode. The screen displays input, output, and battery voltages; input and output frequencies; load level; system date; and time. Screen 
ECO (POWER SAVING)	Description When ECO mode is enabled, the UPS operates in this mode while the input remains within the acceptable range. The screen displays the same values as in ONLINE mode. Screen 

CVCF (FREQUENCY CONVERSION)	Description When Frequency Converter mode is active, the inverter generates a constant output frequency of 50 Hz or 60 Hz, depending on the configuration. BYPASS mode is disabled. Screen 
BATTERY MODE	Description When the UPS is in ONLINE mode and the input moves outside the acceptable range, it automatically switches to BATTERY mode. Screen 
BATTERY TEST	Description In this mode, the UPS performs a battery test. The operator can start this test using the BATT TEST command in the CONTROL menu. Screen 

WARNING	Description If a non-critical abnormal condition occurs and the UPS can continue operating in ONLINE mode, it displays the alarm code and description intermittently on the screen and emits an intermittent audible signal. The Alarm table lists the codes and their meanings. These events are recorded in the UPS Data Log. The audible signal can be muted; however, in some cases, it cannot be muted until the cause of the alarm has been resolved. See Section 12, UPS CONFIGURATION, for more details.
	Screen 

FAULT	Description When a critical condition prevents the UPS from operating in ONLINE mode, the UPS automatically switches to BYPASS mode and continuously displays one or more fault codes on the screen while emitting a continuous audible signal. The Fault table lists the codes and their meanings. These events are recorded in the UPS Data Log.
	Screen 

5.- INSTALLATION: SITE CONDITIONS REVIEW**SAFETY INSTRUCTIONS**

WARNING: Before reading this section, thoroughly read and understand Section 1, “GENERAL SAFETY INSTRUCTIONS.”

WARNINGS, RECOMMENDATIONS AND LIABILITY LIMITATION

SCOPE AND LIMITATION OF LIABILITY: Unless expressly included in the contracted scope, site preparation, wiring, and all protection devices must be provided by the end user and are not the responsibility of the UPS distributor or the technician performing startup. The end user or electrical contractor must prepare the site in compliance with all applicable local codes and regulations and the UPS technical requirements. This manual specifies the minimum site conditions and technical requirements and does not replace local electrical codes or regulations. Where local requirements are more stringent, the end user’s electrical contractor must ensure full compliance with them.

WARNING: Power lines must be protected against overcurrent and leakage current by properly rated protective devices. The installation must also have a proper grounding system.

WARNING: The UPS cabinet and all accessory cabinets, including batteries and transformers, must be connected to a grounding system suitable for the equipment rating. The ground connection must be completed before any other wiring.

WARNING: Install the UPS in a well-ventilated location with adequate clearance from nearby objects and structures.

WARNING: Do not connect equipment that exceeds UPS’ capacity, as this will overload the unit.

WARNING: This product is designed for indoor use and must be protected from water, direct sunlight, dust, and extreme temperatures. Do not use it outdoors or near sources of moisture or heat. A controlled environment between 20°C and 24°C is recommended.

WARNING: Do not place objects on the UPS, apply force to it, or block its ventilation openings.

WARNING: Connect the UPS only to an electrical supply compatible with the selected model. Refer to the rating label for the UPS electrical specifications. DO NOT connect the UPS input to any of its own outputs, as this may permanently damage the unit.

WARNING: DO NOT connect AC motor-driven equipment unless the UPS has been sized according to its inrush current rather than its average current. Motor inrush current may overload the UPS.

WARNING: This unit MUST NOT be installed in an enclosed cabinet that restricts fresh air circulation. During normal operation, air must flow through the ventilation openings to cool the power circuits. Restricted airflow recirculates heated air, raises the internal temperature above the maximum operating limit, and may permanently damage the UPS.

WARNING: A warning sign must be placed on the main electrical panel to alert maintenance personnel that a UPS is connected. The UPS may backfeed hazardous voltage into the panel even when the main switches are open (OFF).

Warning sign Example:

VOLTAGE BACKFEED HAZARD

UPS CONNECTED TO THIS CIRCUIT

Before working on this circuit:

- * Isolate UPS
- * Check all circuit terminals for hazardous voltage.



SITE INSPECTION AND INSTALLATION REQUIREMENTS

REGULATIONS AND LEGAL DIRECTIVES

The installation site, wiring, and power protection devices provided by the end user must meet the UPS technical requirements. An installation may comply with the UPS requirements but not with applicable local codes and regulations. The end user and/or electrical contractor is responsible for ensuring compliance with all applicable electrical codes and regulations.

The inspection performed by the installation technician verifies only the technical conditions required for proper UPS operation and does not certify regulatory compliance.

SITE INSPECTION

- When the UPS is moved from a cold location to a warmer and more humid environment, condensation may form. Allow the UPS to acclimate to the installation site for at least 2 hours before use.
- Do not install the UPS outdoors, near water sources, or in wet environment.
- Do not install the UPS in locations exposed to direct sunlight or heat sources. The operating-site temperature must not exceed 35°C. Battery service life decreases at temperatures above 25°C.
- The installation site must be cool, dry, and free of dust, fibers, and other airborne particles, whether conductive or nonconductive, that could enter the UPS through the ventilation system.
- Do not block UPS ventilation openings.

UPS INPUT AND OUTPUT POWER LINES PROTECTION

AC LINE PROTECTION DEVICES:

All UPS inputs and outputs must be protected by circuit breakers and leakage-current protection devices. Their type and rating must comply with local regulations and the requirements specified in this manual. The grounding system must also comply with local regulations.

DC LINE PROTECTION (EXTERNAL BATTERY CONNECTION):

When installing external batteries, circuit breakers must be installed on the DC lines connecting the UPS to each external battery module. Some UPS units and battery packs include this protection on their rear panel. Otherwise, the end user or installation contractor must provide protection devices that comply with the technical requirements specified in this manual.

ELECTRICAL DEVICES AND MATERIAL INSPECTION

WARNING: Before starting the installation, ensure that all electrical circuits involved are open and free of hazardous voltage. Set all switches associated with these circuits to the “OFF” position. After disconnecting power, use a digital voltmeter to verify that no hazardous voltage is present.

IMPORTANT: Place a warning sign on the main electrical panel, where the protective devices are located, to prevent unauthorized personnel from operating the AC circuits during inspection and startup.

UPS INSTALLATION

UNPACKING AND HANDLING

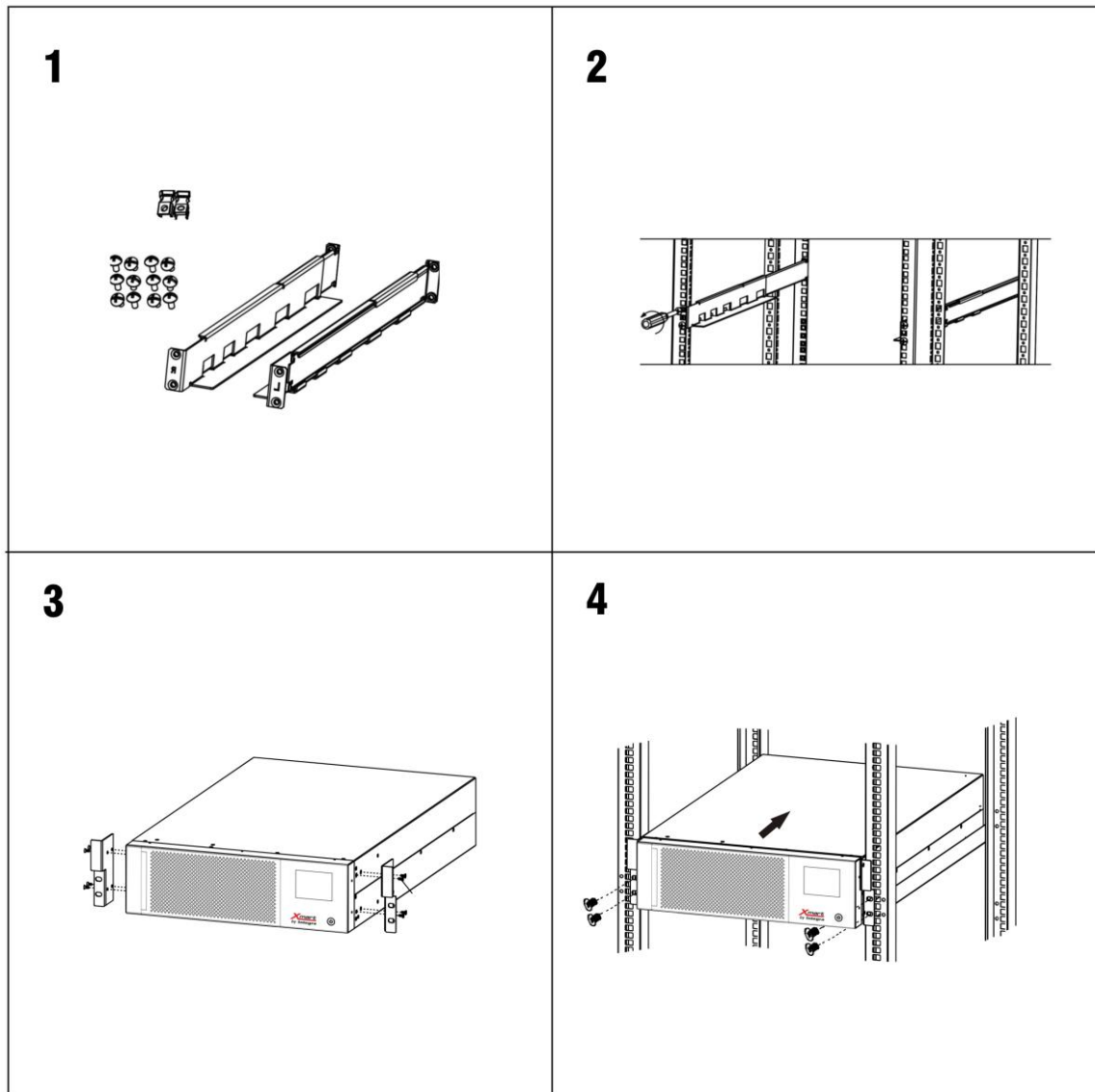
- 1- The equipment is shipped on a pallet and protected with wood and cardboard. Cut the straps and carefully remove the packaging.
- 2- Unpack the equipment as shown in the following figure.
- 3- Use enough personnel to handle the equipment safely.
- 4- For installation in a 19-inch rack, ensure that the mounting rails can support the combined weight of the UPS module and XBAT units.

UPS INSTALLATION ON SITE

This UPS family can be installed vertically in tower configuration or in a 19-inch rack. This section describes the installation procedure for both configurations.

19" RACK UPS INSTALLATION

Due to its weight, rack-mounted equipment must be supported by rails or trays. Never support the UPS or battery modules solely by their mounting ears. Rails and trays are not included; however, XSMART offers adjustable-length rails as an optional accessory. The following images show how to install the UPS module in a rack.

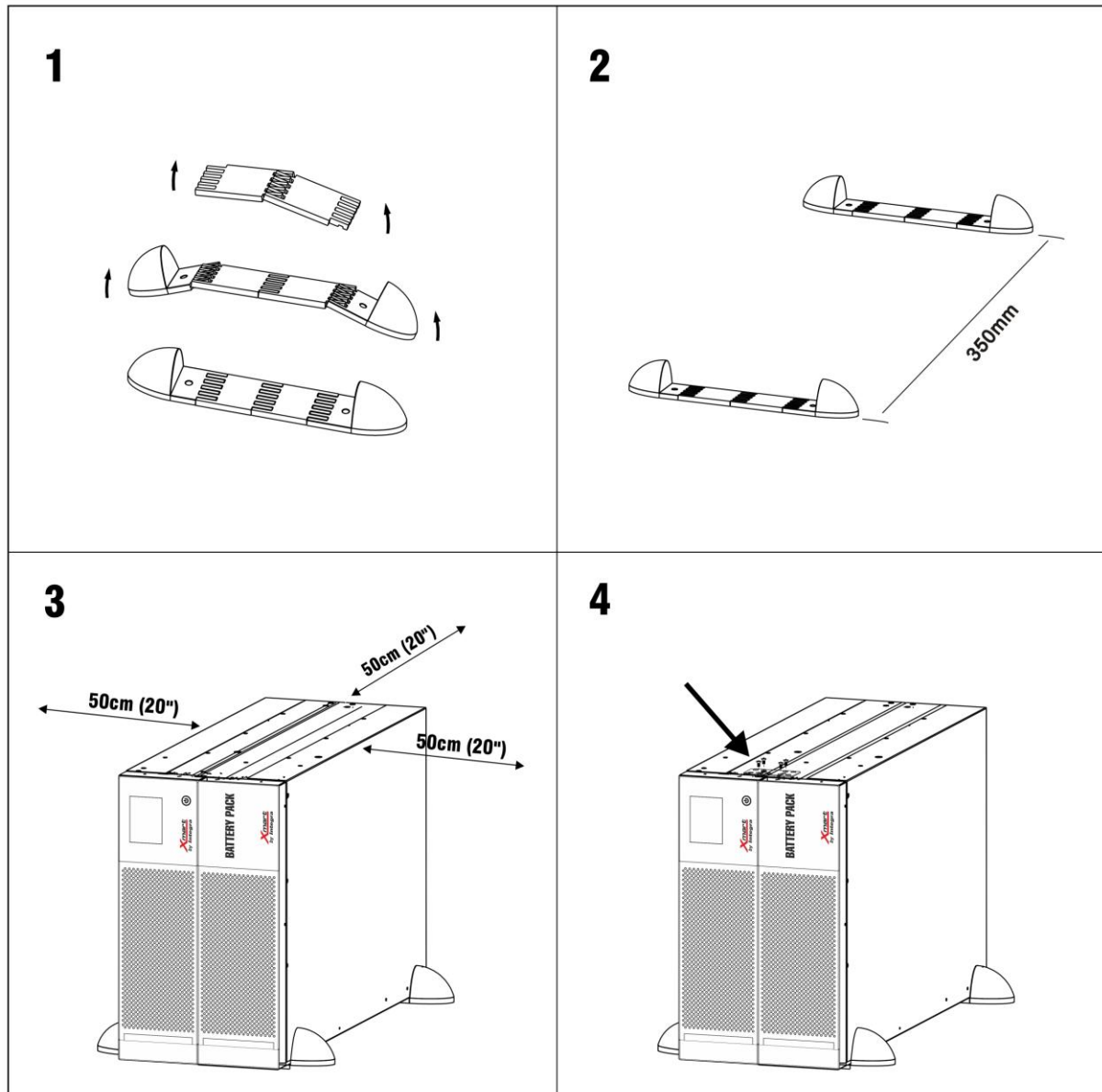


TOWER MOUNTING

This UPS can also be installed in tower configuration using the bases included with the equipment. Follow the instructions below.

TOWER MOUNTING FOR UPS AND BATTERIES:

Assemble the plastic supports included with the equipment to match the required width of the UPS and battery modules. Place the supports on a completely flat surface capable of supporting the equipment's weight. Position the equipment on the supports and secure the modules together using the included brackets and screws, as shown in Step 4.



IMPORTANT NOTES:

- When installing the UPS vertically, configure the LCD for this orientation. See Section 9, UPS CONFIGURATION AND OPERATION, for details.
- Maintain the clearances shown in Image 3 to ensure access to the equipment.
- When installing additional XBAT units, add the supports included with each XBAT to accommodate all modules.

ELECTRICAL REQUIREMENTS

ALL UPS power lines, both input and output, must be protected against overcurrent and earth leakage by properly rated protective devices. The installation must also include an appropriate grounding system.

- This UPS must be connected to an electrical supply compatible with the selected model. Refer to the UPS rating label for its electrical specifications. DO NOT connect the UPS input to any of its own outputs, as this may permanently damage the unit.
- Do not connect equipment or devices that exceed the maximum UPS capacity.
- Connect ONLY computer-related equipment to this UPS. DO NOT connect medical equipment, critical systems, AC motor-driven equipment, or appliances such as ovens, vacuum cleaners, or refrigerators.

EARTH LEAKAGE PROTECTION

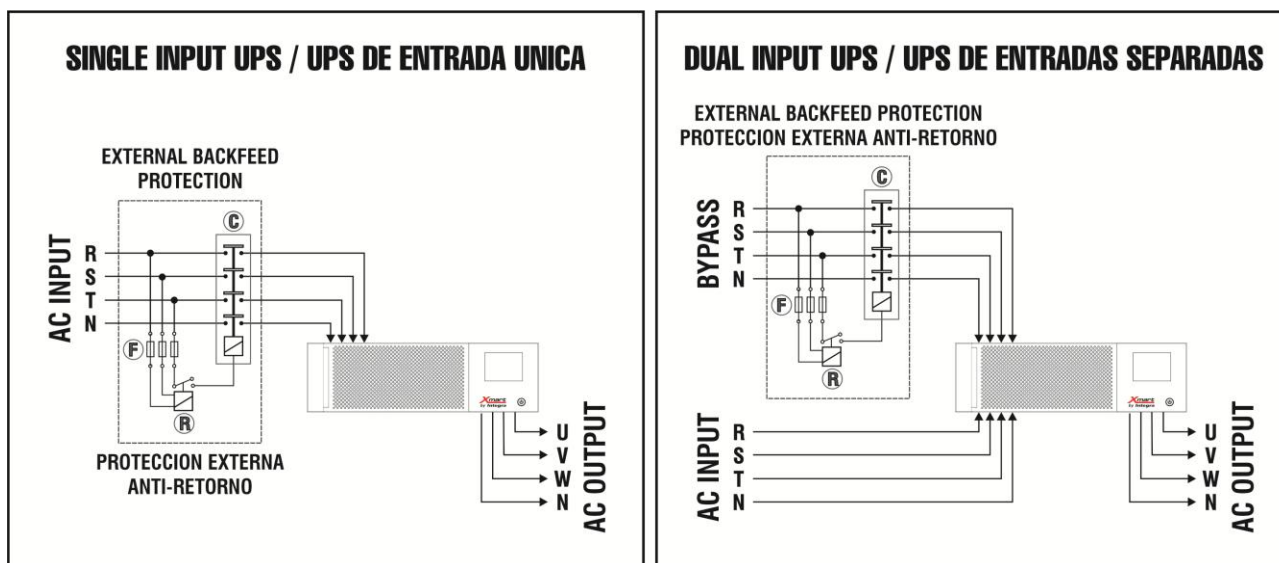
In many countries, regulations require earth-leakage protection on AC lines to protect users in the event of electric shock or a ground fault. The end user or electrical contractor is responsible for selecting and installing these devices in the UPS power circuit.

EN-IEC 62040-1

If local regulations require compliance with EN/IEC 62040-1, an external automatic backfeed protection system, not included with the UPS, must be installed to prevent voltage from returning to the AC input through the internal bypass line, as shown below.

Under normal conditions, the UPS prevents this type of backfeed. However, a failure in the STATIC BYPASS SWITCH could allow power generated by the inverter to return to the UPS input through the STATIC BYPASS LINE. This may expose personnel working on the input panel to hazardous voltage even after the UPS input supply has been disconnected. The external backfeed protection system opens when input power is absent, preventing energy from returning from the UPS.

*** NOTE: This UPS does not include a backfeed protection system.



In a single-input UPS configuration, the main and bypass inputs are connected by jumpers on the terminal block.

In a dual-input configuration, these jumpers are removed to provide independent main and bypass inputs. In this case, the backfeed protection system must be connected to the bypass input.

Legend: Back-Feed Protection:

- C:** Normally open four-pole contactor with a coil rated for the AC input operating voltage and a current rating suitable for the maximum AC input power.
- R:** AC relay with a normally open contact rated for the AC input operating voltage.
- F:** Standard general-purpose AC fuse rated for the AC input operating voltage.

CIRCUIT BREAKERS AND WIRES SELECTION

External circuit breakers, switches, and wire gauges must be rated for the currents shown in the tables below. The suggested values have been selected to ensure proper operation.

NOTE: Local regulations may require higher ratings than those suggested in this manual. In such cases, local requirements must be followed.

208/120VAC MODELS – THREE-PHASE INPUT AND OUTPUT

CAPACITY	Max. AC Current x Phase(A)	AC Input & Output L1, L2, & L3		Neutral		Battery +, N, & - Lines		Ground	
		AWG	mm	AWG	mm	AWG	mm	AWG	mm
5KW	20	14	2,5	10	6	8	10	8	10
10KW	40	10	6	6	16	8	10	6	16
20KW	80	6	16	4	25	4	25	4	25

208/120VAC MODELS – THREE-PHASE INPUT, SINGLE-PHASE OUTPUT

CAPACITY	Max. AC Current x Phase(A)	AC Input L2, & L3		Bypass Line (Note 1) L1			AC Output Line (Note 1) L			Neutral		Battery +, N, & - Lines		Ground	
		AWG	mm	(A)	AWG	mm	(A)	AWG	mm	AWG	mm	AWG	mm	AWG	mm
5KW	20	14	2,5	50	8	10	50	8	10	10	6	8	10	8	10
10KW	40	10	4	100	4	25	90	4	25	6	16	8	10	6	16

400/230VAC MODELS – THREE-PHASE INPUT AND OUTPUT

CAPACITY	Max. AC Current x Phase(A)	AC Input & Output L1, L2, & L3		Neutral		Battery +, N, & - Lines		Ground	
		AWG	mm	AWG	mm	AWG	mm	AWG	mm
10KW	20	14	2,5	10	6	8	10	8	10
15KW	30	12	4	10	6	8	10	8	10
20KW	40	10	6	6	16	8	10	6	16

400/230VAC MODELS – THREE-PHASE INPUT, SINGLE-PHASE OUTPUT

CAPACITY	Max. AC Current x Phase(A)	AC Input L2, & L3		Bypass Line (Note 1) L1			AC Output Line (Note 1) L			Neutral		Battery +, N, & - Lines		Ground	
		AWG	mm	(A)	AWG	mm	(A)	AWG	mm	AWG	mm	AWG	mm	AWG	mm
10KW	20	14	2,5	55	8	10	55	8	10	10	6	8	10	8	10
15KW	30	12	4	82	4	25	82	4	25	10	6	8	10	8	10
20KW	40	10	6	109	3	35	109	3	35	6	16	8	10	6	16

RECOMMENDED CABLE SIZES ACCORDING TO THE 1999 NEC (301-17), BASED ON AN AMBIENT TEMPERATURE OF 30°C AND INDIVIDUAL CABLES.

ESTIMATED PHASE CURRENT IN NORMAL MODE WITH A MINIMUM INPUT OF 200VAC PER PHASE (100VAC PER PHASE FOR 120V UNITS). NEUTRAL CURRENT IS ESTIMATED AT 1.7 TIMES THE PHASE CURRENT.

NOTE 1: In three-phase-input, single-phase-output installations, the bypass supply must be single-phase, connected to the L1 phase of the AC input, and rated for the full UPS capacity. The AC output (L) must also be rated for the full UPS capacity. Single-phase output configuration may only be performed by authorized XSMART technical personnel and is available for all models in this family except the OPTIMA-33-RT10 20K-208-NB.

WARNING:



The listed wire gauges are recommendations and must be reviewed by the responsible electrician to suit the installation. Wire sizing depends on factors such as operating temperature, cable length, cable type, and installation method. The electrical contractor must ensure the proper selection of wiring and line protection devices in accordance with applicable local regulations. Wire colors must also comply with local regulations.

6.- SINGLE UPS WIRING: TERMINAL BLOCKS & EXTERNAL BATTERIES

Connections must be made at the terminal blocks on the UPS rear panel. This section provides the information required to connect the UPS and external batteries to the AC and DC circuits.

AC LINE CONNECTIONS



- * Ensure that the UPS is Off before starting the installation.
- * Verify that all wires to be connected are de-energized, including the external battery cables.

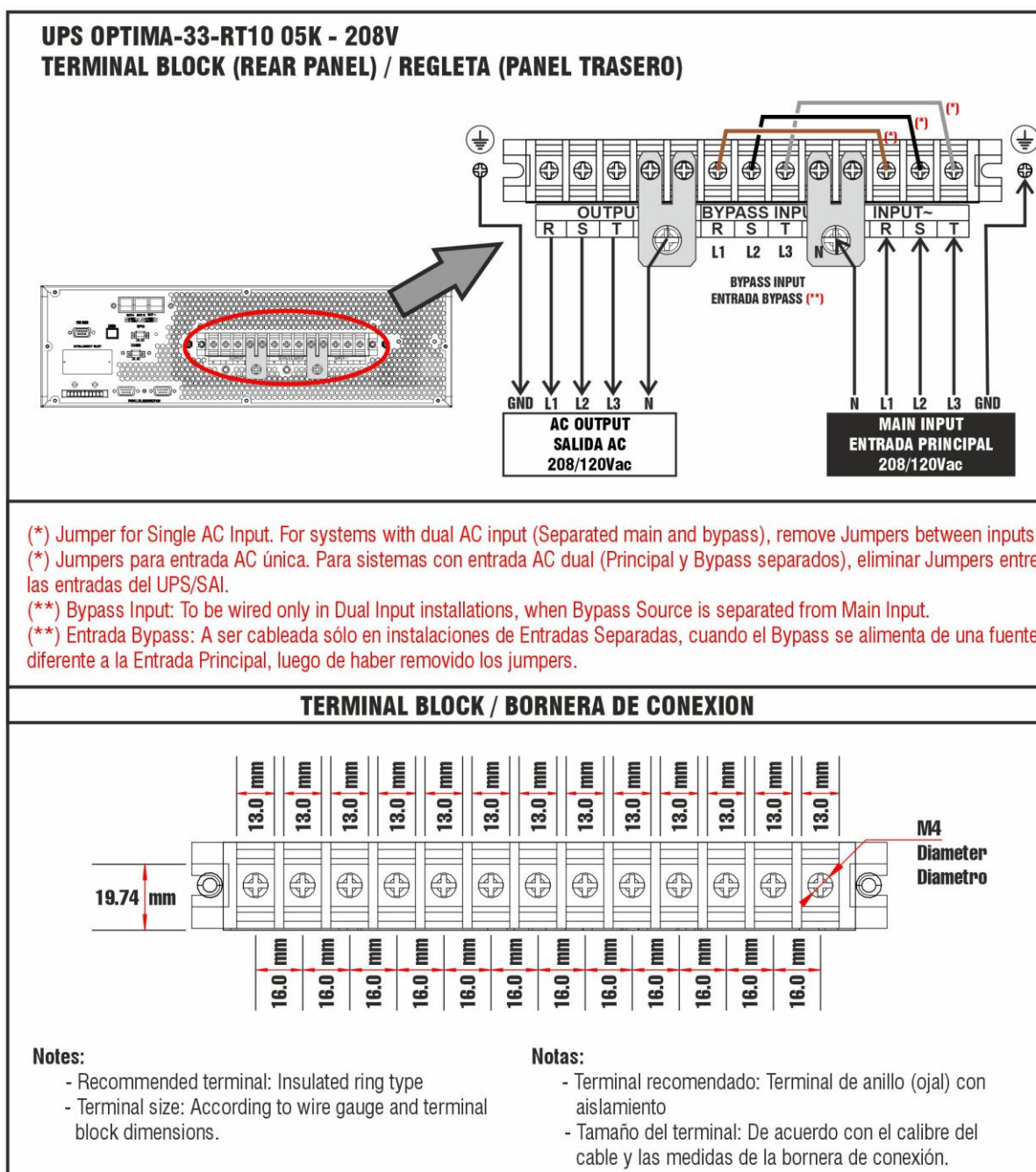
TERMINAL BLOCK PREPARATION

Remove the terminal block cover from the rear of the UPS. Each line must be protected by a circuit breaker.

For safety, connect the GROUND cables first and disconnect them last.

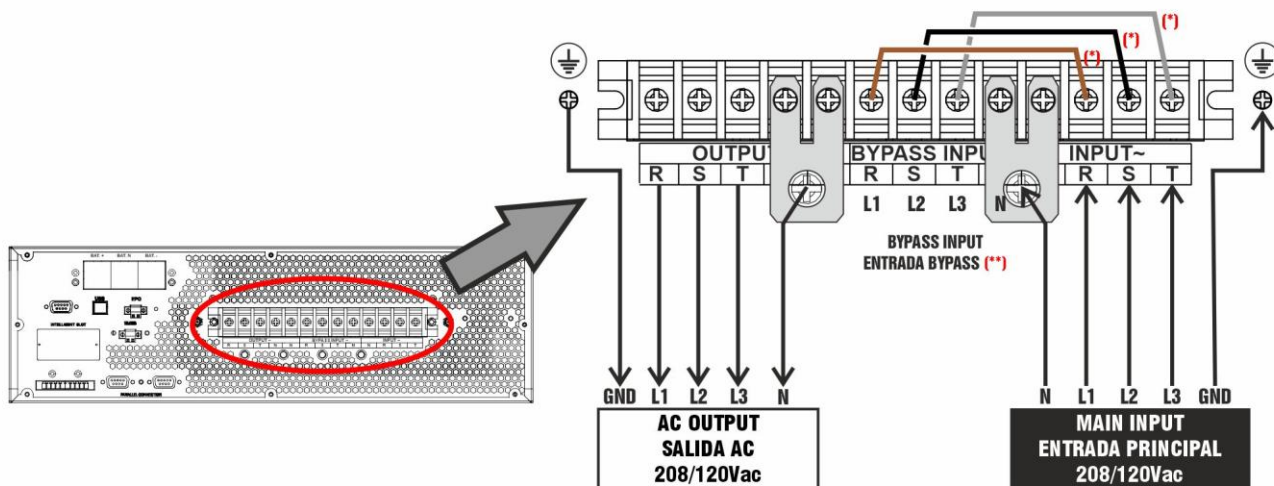
This section shows the connections for UPS units with three-phase input and output. For units configured with single-phase output, see [ANNEX A](#).

AC CONNECTION – MODEL OPTIMA-33-RT10 – 05K-208-NB



AC CONNECTION – MODEL OPTIMA-33-RT10 – 10K -208-NB

**UPS OPTIMA-33-RT10 10K - 208V
TERMINAL BLOCK (REAR PANEL) / REGLETA (PANEL TRASERO)**

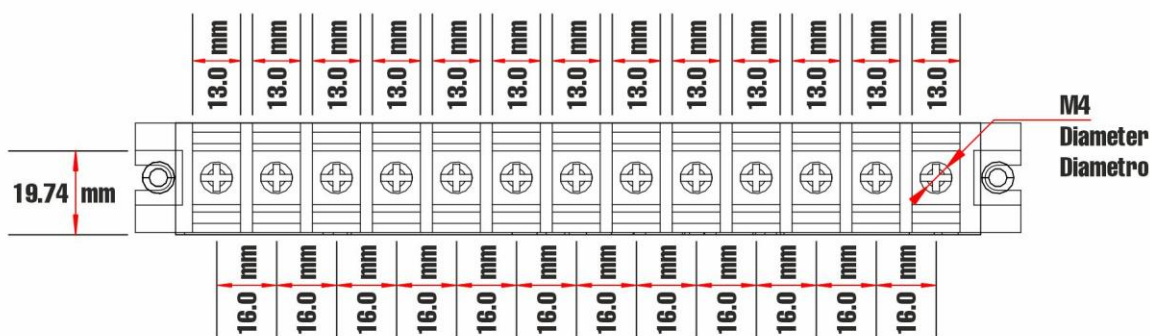


(*) Jumper for Single AC Input. For systems with dual AC input (Separated main and bypass), remove Jumpers between inputs.
(*) Jumpers para entrada AC única. Para sistemas con entrada AC dual (Principal y Bypass separados), eliminar Jumpers entre las entradas del UPS/SAI.

(**) Bypass Input: To be wired only in Dual Input installations, when Bypass Source is separated from Main Input.

(**) Entrada Bypass: A ser cableada sólo en instalaciones de Entradas Separadas, cuando el Bypass se alimenta de una fuente diferente a la Entrada Principal, luego de haber removido los jumpers.

TERMINAL BLOCK / BORNERA DE CONEXION



Notes:

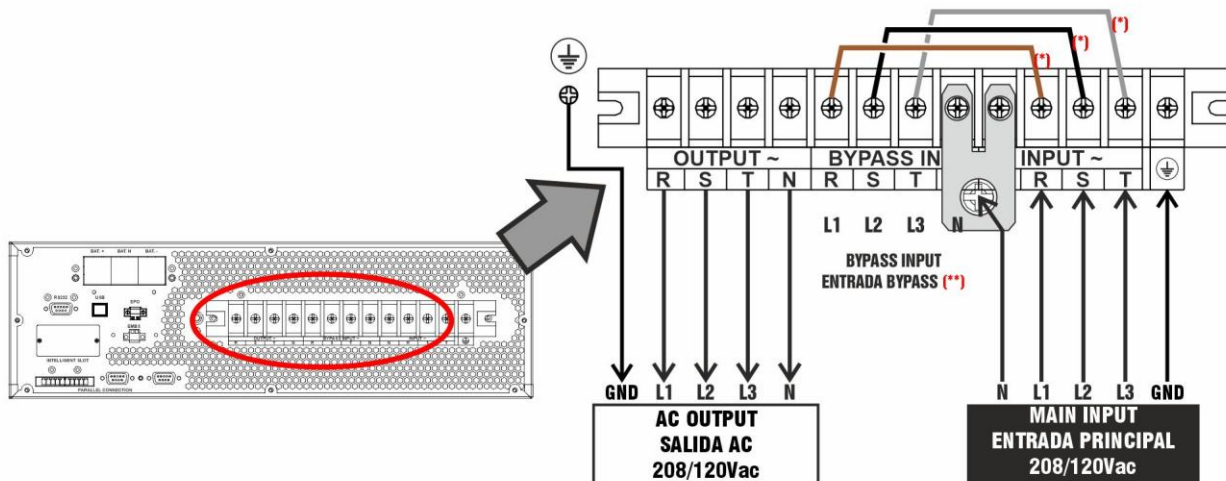
- Recommended terminal: Insulated ring type
- Terminal size: According to wire gauge and terminal block dimensions.

Notas:

- Terminal recomendado: Terminal de anillo (ojal) con aislamiento
- Tamaño del terminal: De acuerdo con el calibre del cable y las medidas de la bornera de conexión.

AC CONNECTION – MODEL OPTIMA-33-RT10 – 20K-208-NB

**UPS OPTIMA-33-RT10 20K - 208V
TERMINAL BLOCK (REAR PANEL) / REGLETA (PANEL TRASERO)**

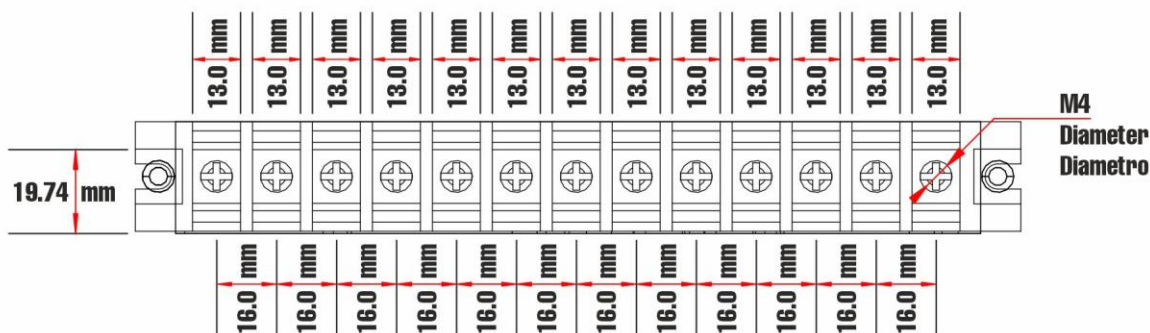


(*) Jumper for Single AC Input. For systems with dual AC input (Separated main and bypass), remove Jumpers between inputs.
(*) Jumpers para entrada AC única. Para sistemas con entrada AC dual (Principal y Bypass separados), eliminar Jumpers entre las entradas del UPS/SAI.

(**) Bypass Input: To be wired only in Dual Input installations, when Bypass Source is separated from Main Input.

(**) Entrada Bypass: A ser cableada sólo en instalaciones de Entradas Separadas, cuando el Bypass se alimenta de una fuente diferente a la Entrada Principal, luego de haber removido los jumpers.

TERMINAL BLOCK / BORNERA DE CONEXION



Notes:

- Recommended terminal: Insulated ring type
- Terminal size: According to wire gauge and terminal block dimensions.

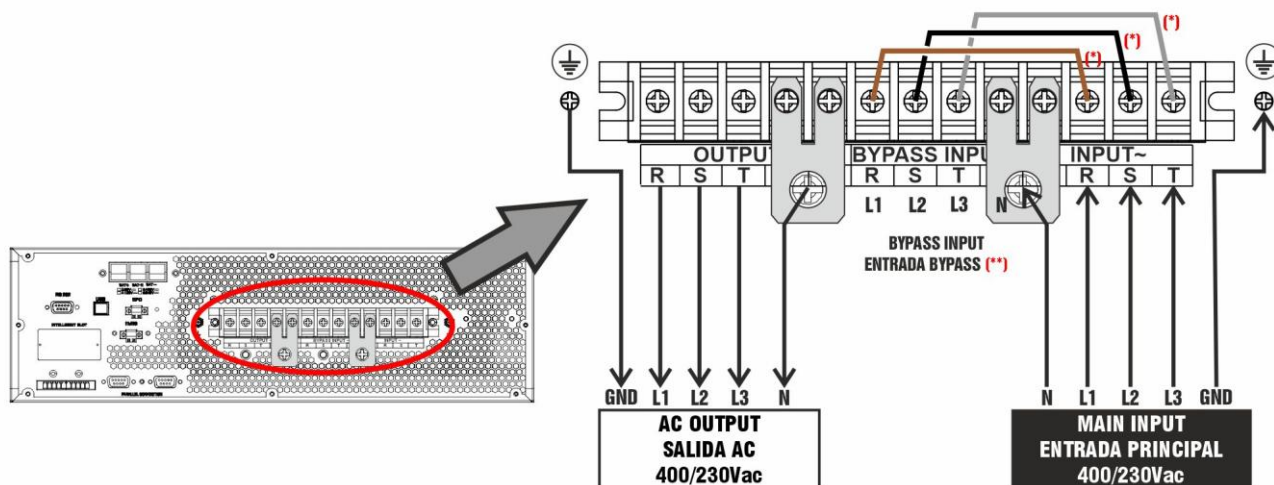
Notas:

- Terminal recomendado: Terminal de anillo (ojal) con aislamiento
- Tamaño del terminal: De acuerdo con el calibre del cable y las medidas de la bornera de conexión.

AC CONECTION – MODEL OPTIMA-33-RT10 – 10K-400-NB

OPTIMA-33-RT10 10K - 400V

TERMINAL BLOCK (REAR PANEL) / REGLETA (PANEL TRASERO)



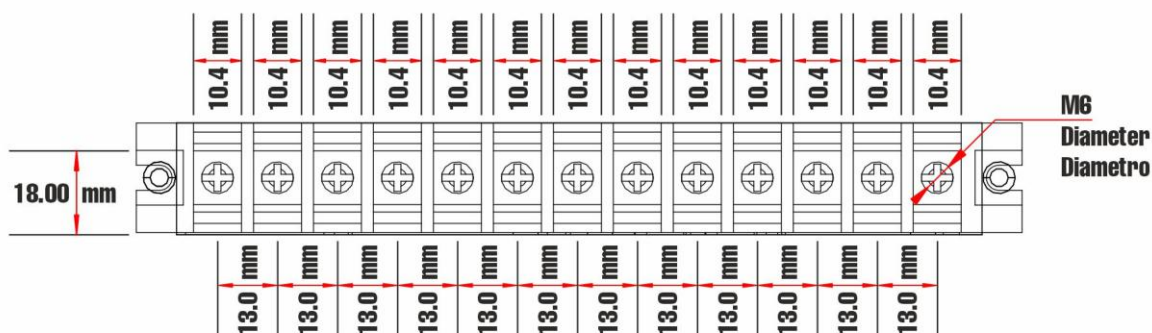
(*) Jumper for Single AC Input. For systems with dual AC input (Separated main and bypass), remove Jumpers between inputs.

(*) Jumpers para entrada AC única. Para sistemas con entrada AC dual (Principal y Bypass separados), eliminar Jumpers entre las entradas del UPS/SAI.

(**) Bypass Input: To be wired only in Dual Input installations, when Bypass Source is separated from Main Input.

(**) Entrada Bypass: A ser cableada sólo en instalaciones de Entradas Separadas, cuando el Bypass se alimenta de una fuente diferente a la Entrada Principal, luego de haber removido los jumpers.

TERMINAL BLOCK / BORNERA DE CONEXION



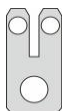
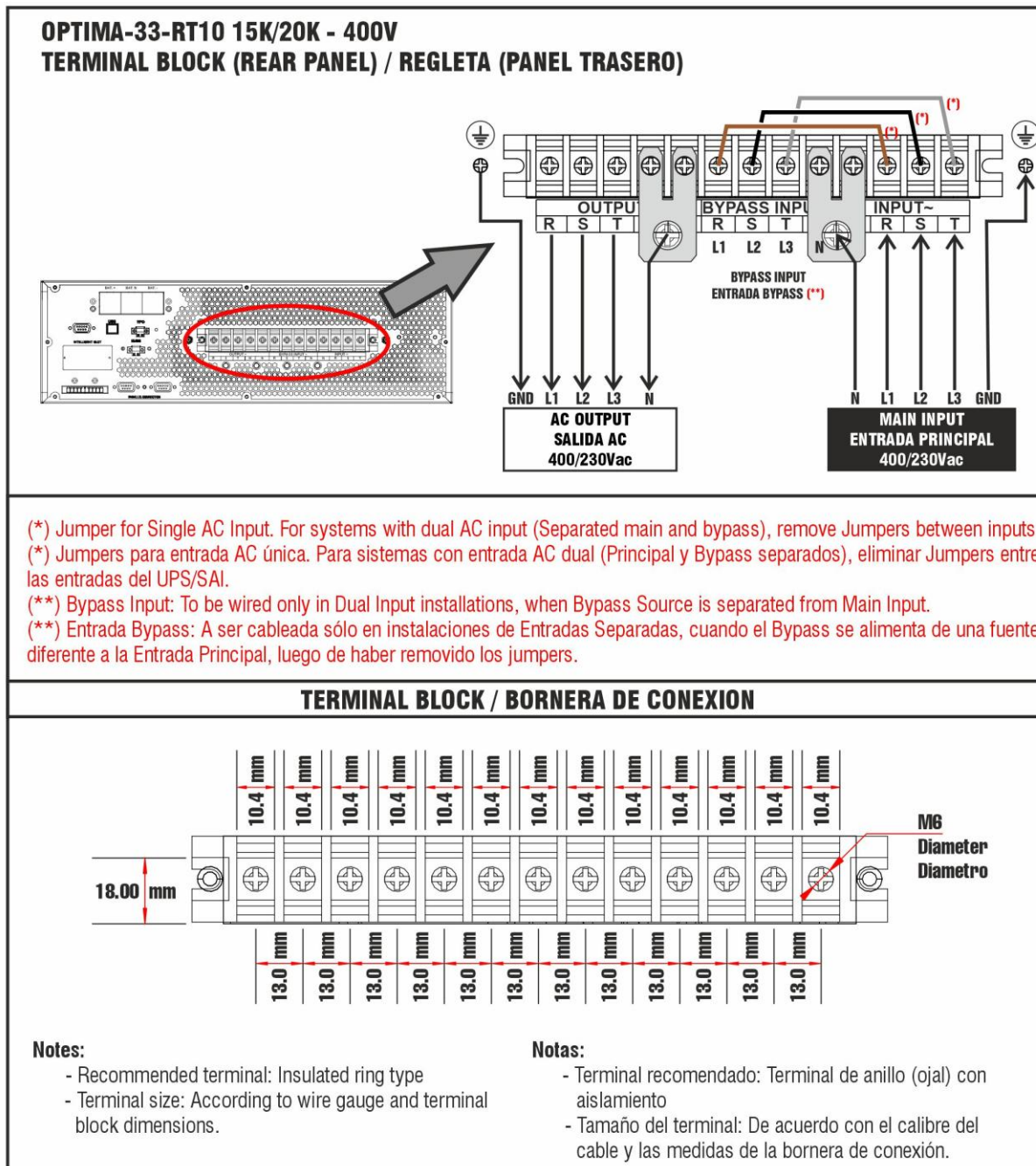
Notes:

- Recommended terminal: Insulated ring type
- Terminal size: According to wire gauge and terminal block dimensions.

Notas:

- Terminal recomendado: Terminal de anillo (ojal) con aislamiento
- Tamaño del terminal: De acuerdo con el calibre del cable y las medidas de la bornera de conexión.

AC CONNECTION – MODEL OPTIMA-33-RT10 – 15K / 20K -400-NB



2-Pole Jumper included with the UPS

IMPORTANT NOTES:

- For systems with separate main and bypass inputs, remove the factory-installed jumpers between the MAIN AC and BYPASS inputs.
- If the UPS is powered by a single source, which is the most common configuration, keep the jumpers installed and connect the power supply to the MAIN INPUT terminals.
- If single-phase output operation is required, configuration and wiring must be performed only by XMART-authorized technical personnel. Contact your supplier for more information.

EXTERNAL BATTERY CONNECTION

Each **OPTIMA-33-RT10** UPS model has a specific DC battery voltage. When connecting external battery packs, ensure that their DC voltage matches the UPS model and use only original XSMART cables.

Battery Modules have three connection points to the UPS:

1. **BATT (+)**
2. **BATT NEUTRAL**
3. **BATT (-)**

The following table lists all UPS models in this family and their compatible XBAT configurations.

AC Voltage	Model	Nominal DC Voltage	Compatible XBAT	XBAT Min.
208/120Vac	OPTIMA-33-RT10-05K-208	+/- 120Vdc	XBAT-OPT33-RT-2x120V-H	1
	OPTIMA-33-RT10-10K-208	+/- 120Vdc	XBAT-OPT33-RT-2x120V-H	1
	OPTIMA-33-RT10-20K-208	+/- 120Vdc	XBAT-OPT33-RT-2x120V-V	2
400/230Vac	OPTIMA-33-RT10-10K-400	+/- 120Vdc	XBAT-OPT33-RT-2x120V-H	1
	OPTIMA-33-RT10-15K-400	+/- 240Vdc	XBAT-OPT33-RT-2x120V-H	2
	OPTIMA-33-RT10-20K-400	+/- 240Vdc	XBAT-OPT33-RT-2x120V-H	2

Nominal DC Voltage: The UPS DC voltage that the XBAT must match.

XBAT Compatible: The appropriate XBAT for each UPS model. Available models:

- **XBAT-OPT33-RT-2x120V-H (+/- 120VDC)**
- **XBAT-OPT33-RT-2x120V-V (+/- 120VDC)**

Both models contain 20 batteries wired in series with a center tap (± 120 VDC). They use different DC connectors according to the current required by each UPS model, as shown in the connection diagrams later in this manual.

XBAT Min. Minimum number of XBAT units required for UPS operation. Additional XBAT units may be added to extend the backup time.

Notes:

- **Positive voltages are measured from BATT (+) to BATT NEUTRAL.**
- **Negative voltages are measured from BATT (-) to BATT NEUTRAL.**

EXTERNAL BATTERY CONNECTION INSTRUCTIONS

This section explains how to connect each UPS model to its corresponding XBAT battery pack.

UPS DC CONNECTORS

For all models, connect the batteries to the dedicated connectors on the UPS rear panel, as indicated in the “DESCRIPTION OF PARTS FOR ALL MODELS” section.

WARNINGS:

- **Use only the original XSMART cables specified for each model. Using incorrect cables may cause malfunction or equipment damage during startup.**
- **The maximum DC current for each battery bank can be calculated by dividing its required power in VA by its DC voltage.**

INSTRUCTIONS:

1. Ensure that the switches or fuse holders on each XBAT are in the OFF position.
2. Remove the protective covers from the DC connectors on the UPS and XBAT.
3. Use a voltmeter to verify that no hazardous voltage is present at the terminals or connectors.

4. Using the cable supplied with the equipment, connect the UPS to the first XBAT. The minimum number of XBAT units depends on the UPS model. Refer to the connection diagrams on the following pages.
5. When installing multiple XBAT units, connect each XBAT to the next using the cable specified for the UPS model in the table below. Continue until the last XBAT is connected. Ensure that all cables are firmly connected to the UPS and XBAT units. Loose connections may cause overheating or malfunction.
6. BEFORE STARTING THE UPS, sequentially close the switches or fuse holders on the XBAT units to connect them in parallel to the UPS.

The following table lists each UPS model, it's included DC cable, the compatible XBAT, and the DC cable included with the XBAT.

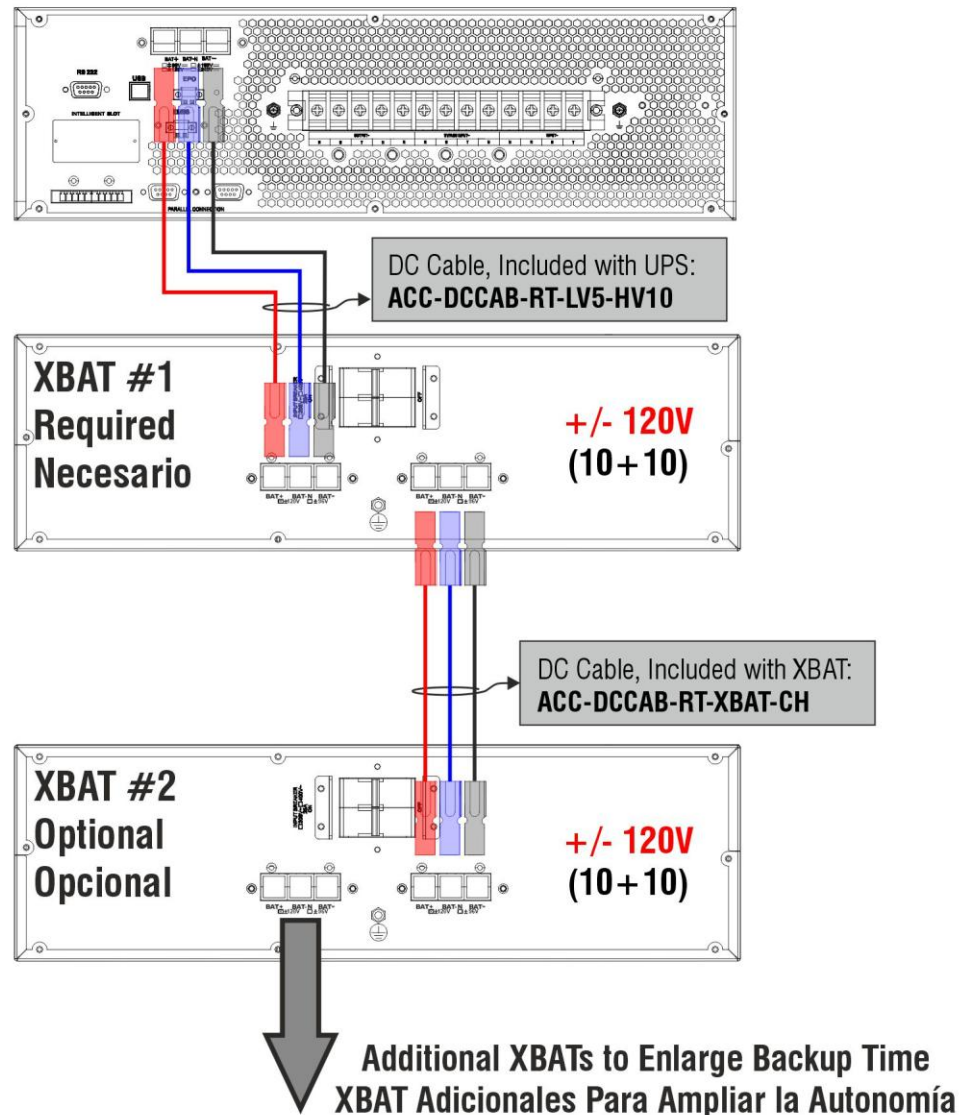
UPS			XBAT		
UPS Model	UPS DC Cable Cable DC del UPS	Qty / Cant	XBAT Compatible With Each UPS / XBAT Compatible Con cada UPS	XBAT DC Cable Cable DC del XBAT	Qty / Cant
OPTIMA-33-RT10-05K-208	ACC-DCCAB-RT-LV5-HV10	1	XBAT-OPT33-RT-2x120V-H	ACC-DCCAB-RT-XBAT-CH	1
OPTIMA-33-RT10-10K-208	ACC-DCCAB-RT-LV10	1	XBAT-OPT33-RT-2x120V-H	ACC-DCCAB-RT-XBAT-CH	1
OPTIMA-33-RT10-20K-208	ACC-DCCAB-RT-LV20	1	XBAT-OPT33-RT-2x120V-V	ACC-DCCAB-RT-XBAT-CV	1
OPTIMA-33-RT10-10K-400	ACC-DCCAB-RT-LV5-HV10	1	XBAT-OPT33-RT-2x120V-H	ACC-DCCAB-RT-XBAT-CH	1
OPTIMA-33-RT10-15K-400	ACC-DCCAB-RT-HV15-20	1	XBAT-OPT33-RT-2x120V-H	ACC-DCCAB-RT-XBAT-CH	1
OPTIMA-33-RT10-20K-400	ACC-DCCAB-RT-HV15-20	1	XBAT-OPT33-RT-2x120V-H	ACC-DCCAB-RT-XBAT-CH	1

IMPORTANT NOTES:

1. **UPS DC Cable:** Connects the UPS to the first XBAT and is included with the corresponding UPS.
2. **XBAT DC Cable:** Included with the XBAT and used to connect additional XBAT units to those already connected by the UPS DC cable. For models with a nominal DC voltage of ± 240 VDC, XBAT units must be added in pairs: one for the BAT+ line (+240 V) and one for the BAT- line (-240 V).
3. The connection diagrams on the following pages show the DC cables, nominal voltage, UPS-XBAT compatibility, and minimum number of XBAT units required for each UPS model.

EXTERNAL BATTERY CONNECTION – 208/120 VAC MODELS

OPTIMA-33-RT10-05K-208



UPS Model / Modelo de UPS: OPTIMA-33-RT10-05K-208

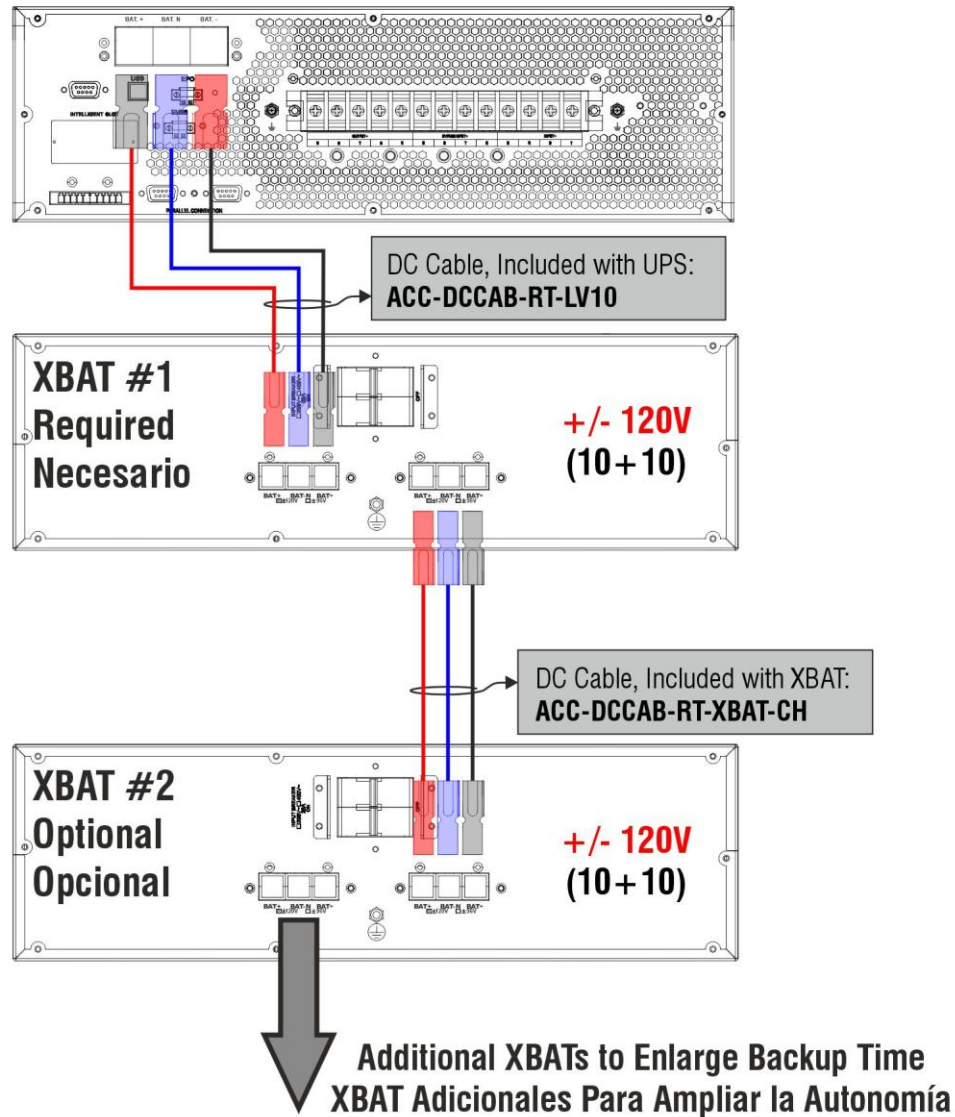
Nominal DC Voltage / Voltaje DC Nominal: +/- 120Vdc

Compatible XBAT / XBAT Compatible: XBAT-OPT33-RT-2x120V-H

Min. XBAT Required to Work: 1 (XBAT#2 is optional to Enlarge Backup Time)

Número de XBAT Requerido Para Operar: 1 (XBAT#2 es opcional para ampliar el respaldo)

OPTIMA-33-RT10-10K-208



UPS Model / Modelo de UPS: OPTIMA-33-RT10-10K-208

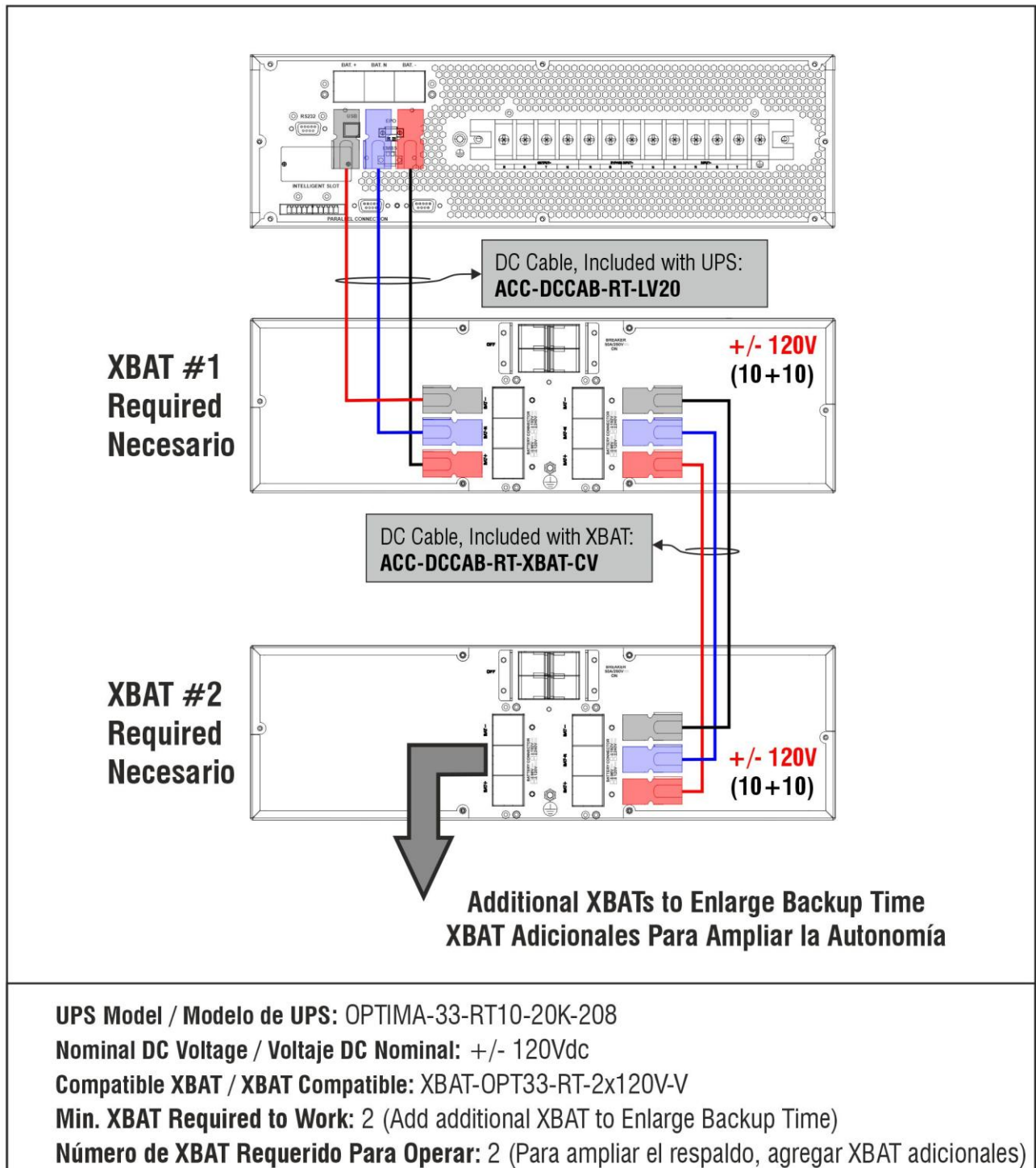
Nominal DC Voltage / Voltaje DC Nominal: +/- 120Vdc

Compatible XBAT / XBAT Compatible: XBAT-OPT33-RT-2x120V-H

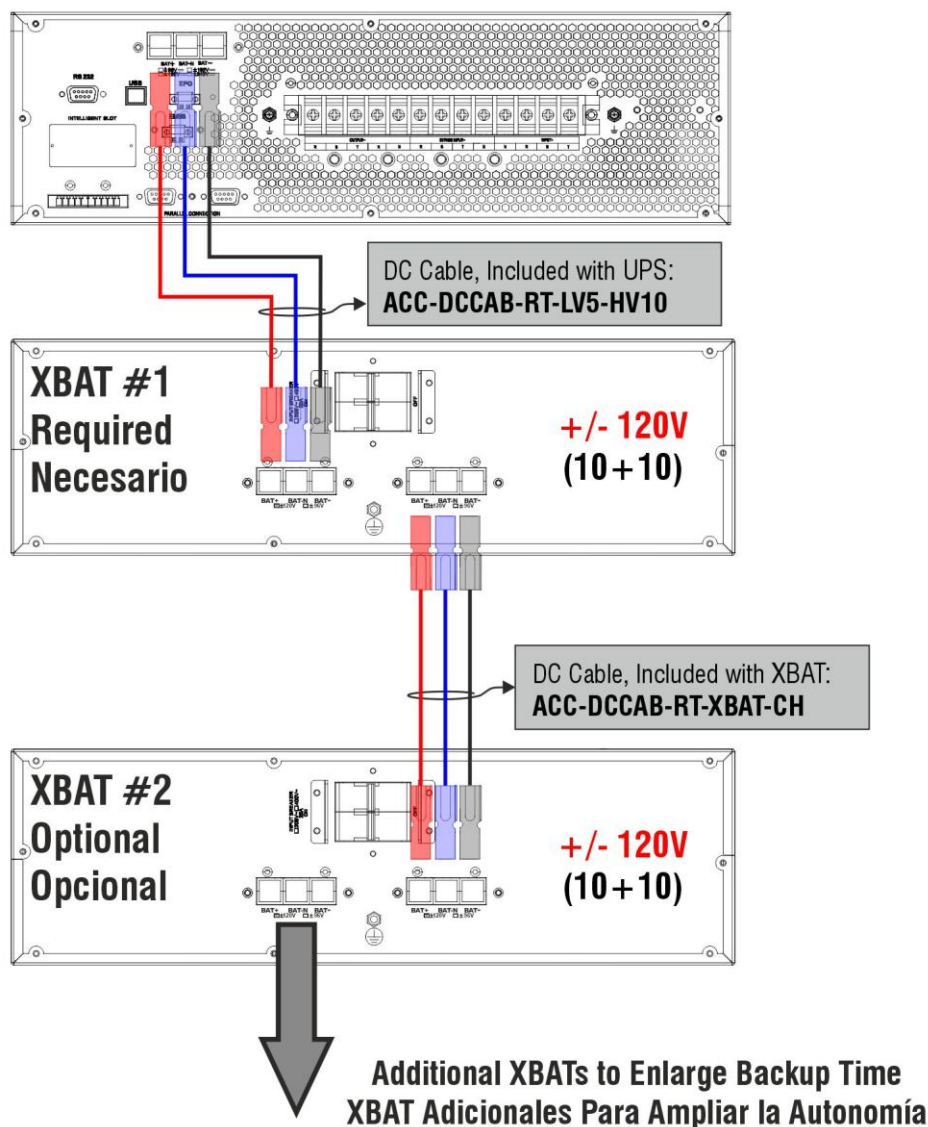
Min. XBAT Required to Work: 1 (XBAT#2 is optional to Enlarge Backup Time)

Número de XBAT Requerido Para Operar: 1 (XBAT#2 es opcional para ampliar el respaldo)

OPTIMA-33-RT10-20K-208



EXTERNAL BATTERY CONNECTION – 400/230 VAC MODELS
OPTIMA-33-RT10-10K-400



UPS Model / Modelo de UPS: OPTIMA-33-RT10-10K-400

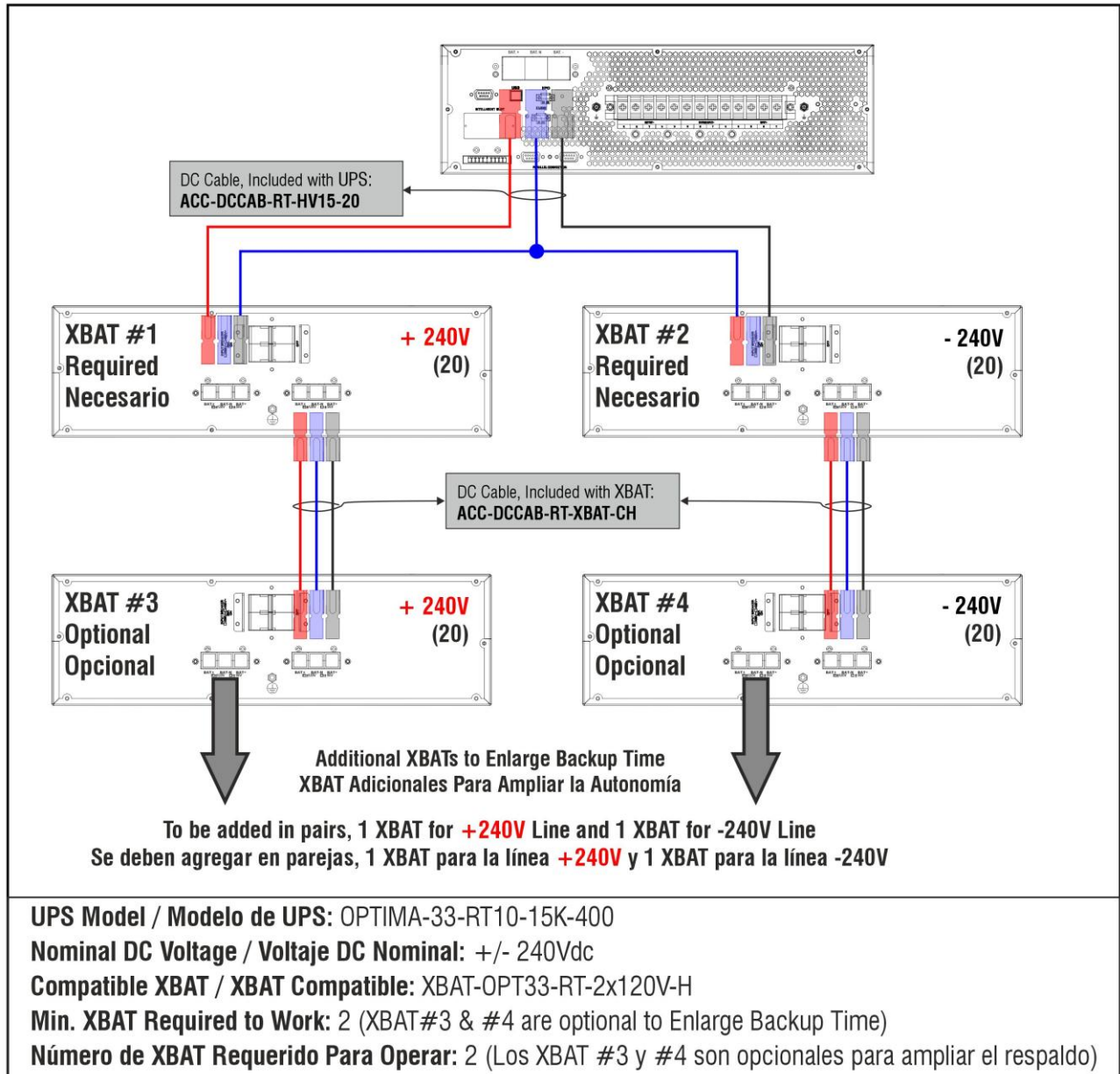
Nominal DC Voltage / Voltaje DC Nominal: +/- 120Vdc

Compatible XBAT / XBAT Compatible: XBAT-OPT33-RT-2x120V-H

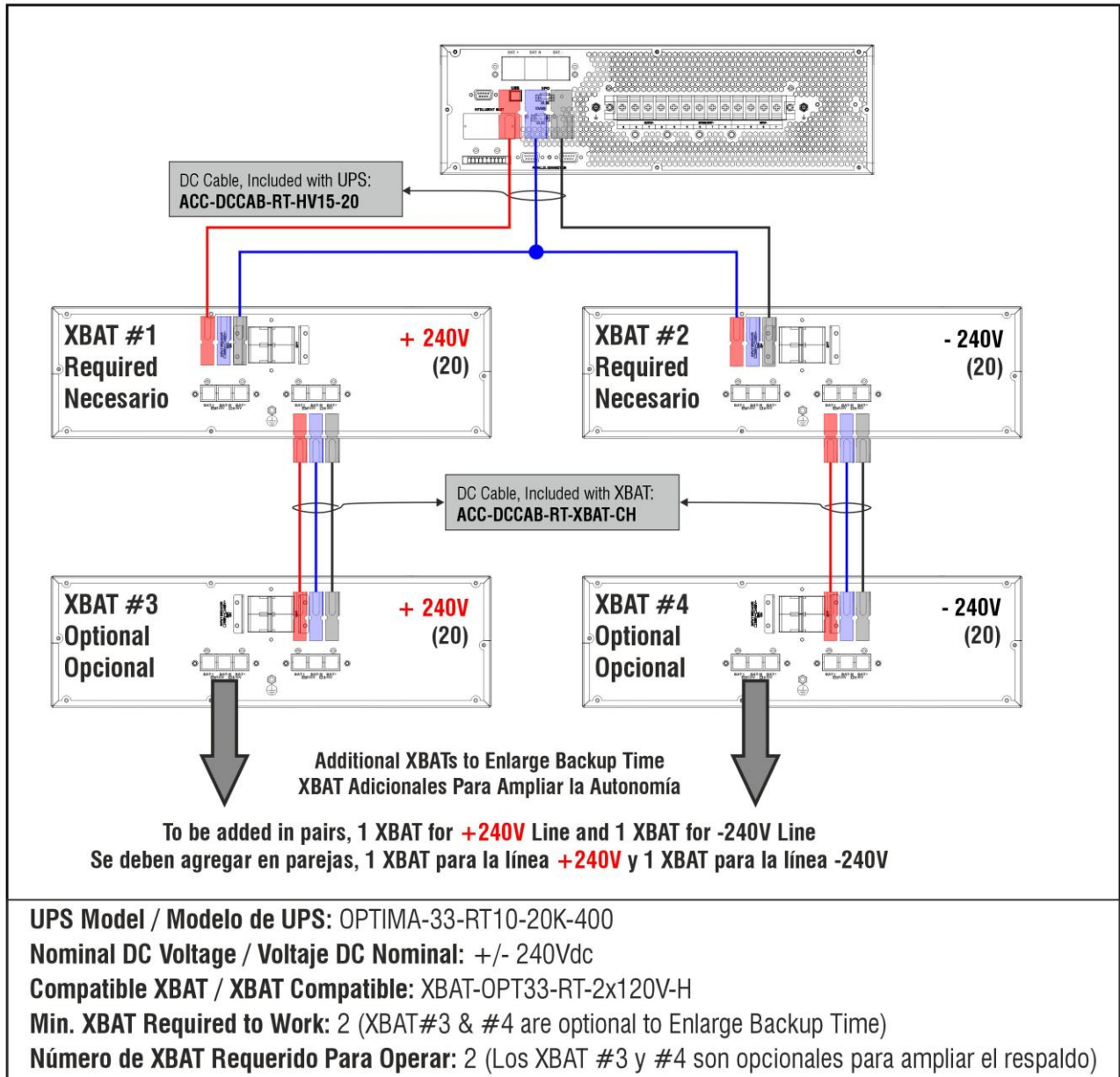
Min. XBAT Required to Work: 1 (XBAT#2 is optional to Enlarge Backup Time)

Número de XBAT Requerido Para Operar: 1 (XBAT#2 es opcional para ampliar el respaldo)

OPTIMA-33-RT10-15K-400



OPTIMA-33-RT10-20K-400



7.- PARALLEL UPS CONNECTIONS

GENERAL INFORMATION

- Up to 4 UPS units can be installed for parallel operation. This section describes the required connections.
- UPS units operating in parallel must be configured and started as described in this manual.
- Incorrect connection, configuration, or startup may cause permanent damage. Follow all instructions carefully.



- Ensure that all UPS units are turned off before starting the installation.
- Verify that all wires to be connected are de-energized before beginning any procedure.

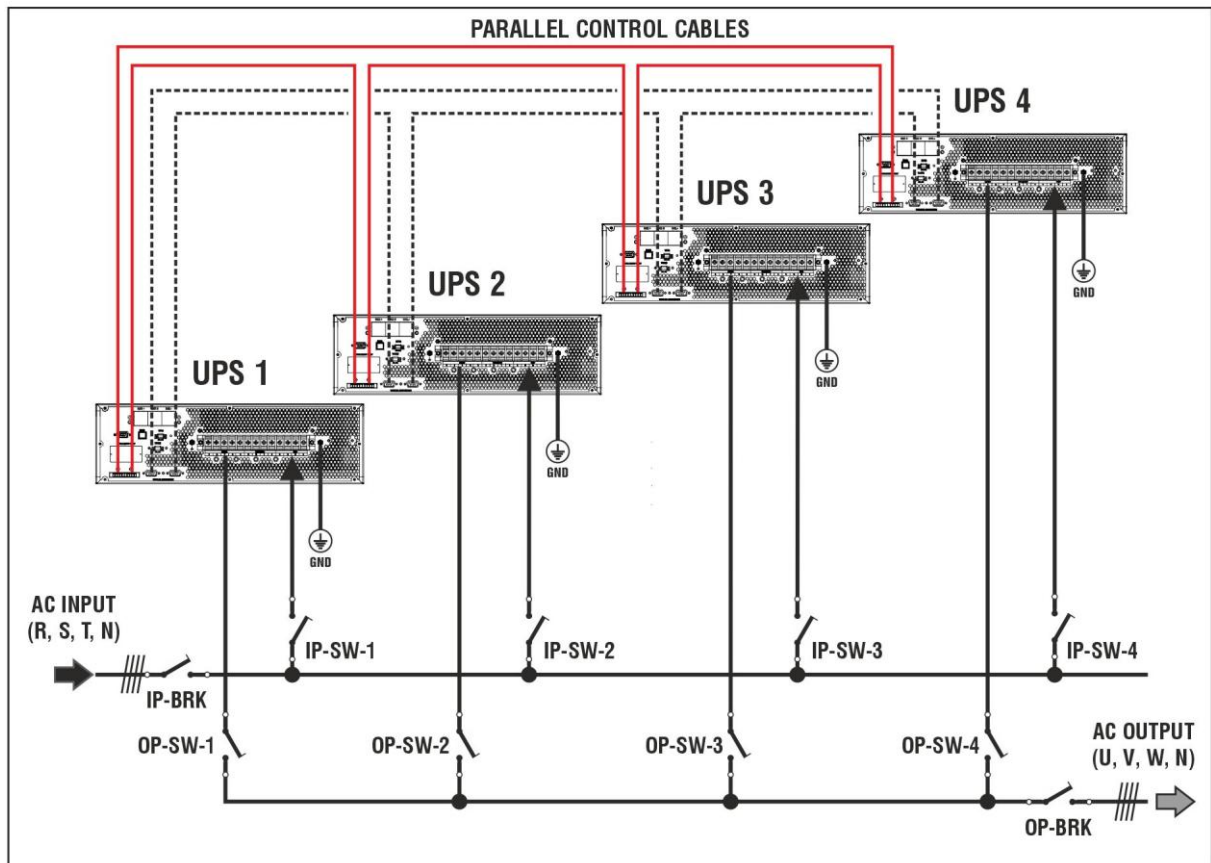
Parallel connection requires connecting the main AC line to the input of every UPS unit and connecting all UPS outputs in parallel to a common AC output that supplies the protected system.

Each UPS should have an individual external circuit breaker at both its input and output, allowing maintenance on one unit without shutting down the entire system. The neutral lines between UPS units should not pass through circuit breakers. Neutral serves as a common reference and must remain connected at all times. Opening one of the neutral conductors may cause operational errors.

Circuit breakers must also be installed at the system's main input and output.

The following figure shows the general wiring diagram for this UPS family with three-phase input and output, including all recommended circuit breakers. Single-phase output installations are described in a separate manual. Detailed terminal block connections are provided later in this section.

OPTIMA-33-RT10: 3-Phase Input & 3-Phase Output



AC INPUT: Main AC input power source

R, S, T, N: Input lines L1, L2, L3, and neutral

U, V, W, N: Output lines L1, L2, L3, and neutral

IP -BRK: Main AC input circuit breaker

OP-BRK: AC output circuit breaker

IP-SW-1 / SW-IP-2 / SW-IP-3: Individual input circuit breaker for each UPS

OP-SW-1 / SW-OP-2 / SW-OP-3: Individual output circuit breaker for each UPS

AC LINES: CONNECTION PROCEDURES



- Ensure that the UPS is turned off before starting the installation.
- Verify that all wires to be connected are de-energized, including the external battery cables.

TERMINAL BLOCK PREPARATION

Remove the safety plate covering the terminal block, as described in Section 6, SINGLE UPS WIRING. Each line must be protected by a circuit breaker. For safety, connect the GROUND wires first and disconnect them last.

**IMPORTANT NOTE – EXTERNAL BATERIES:**

When two UPS units are installed in parallel, each unit may use an individual battery pack, or both units may share a common battery pack. No special UPS configuration is required for shared batteries.

When more than two UPS units are installed in parallel, battery packs cannot be shared, as shown in the connection diagrams later in this manual.

UPS INPUT AND OUTPUT CONNECTIONS

A) EARTH CABLES:

First, connect the input and output ground cables to the marked points on the UPS chassis. Depending on the model, the grounding points may be located beside or directly on the terminal block. Connect the GROUND cables first and disconnect them last.

B) AC INPUT CABLES:

The AC input cables must come from the main circuit breaker in the electrical panel and pass through individual circuit breakers before being connected to each UPS terminal block.

C) AC OUTPUT CABLES:

The AC output cables from each UPS must be connected to individual circuit breakers. These breakers must then be connected to a higher-capacity main output circuit breaker supplying the protected equipment.

D) BATTERY CABLES:

Connect the XBAT to the dedicated connector on the UPS. See the EXTERNAL BATTERY CONNECTION section for cable and connection details according to the UPS model and voltage.

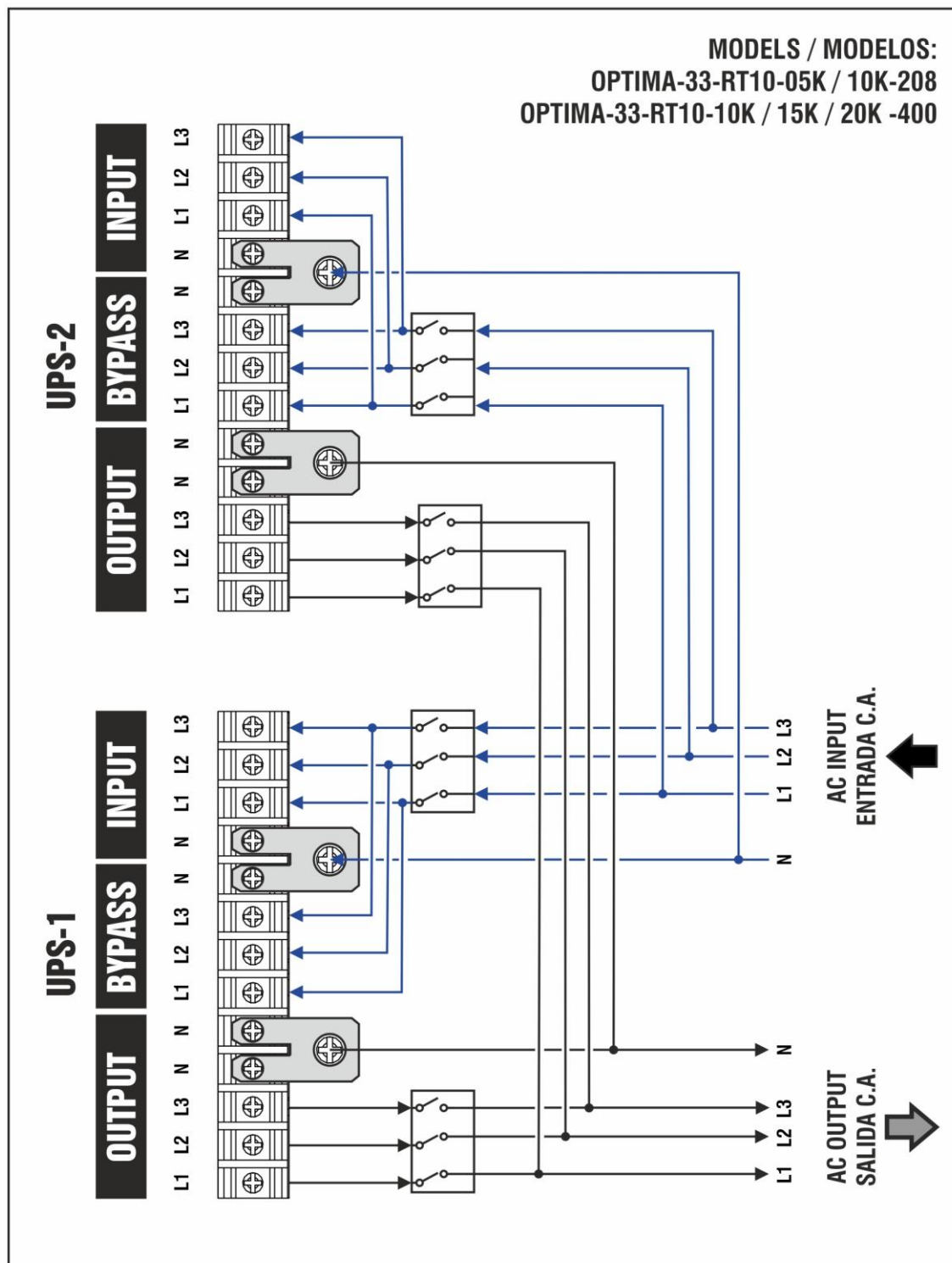
E) CONTROL CABLES FOR PARALLEL OPERATION:

Connect the parallel control and current-sharing cables as shown in the “**PARALLEL UPS: CONTROL CABLES**” section later in this manual.

THE FOLLOWING FIGURES SHOW THE CONNECTIONS BETWEEN THE UPS TERMINAL BLOCKS.

THE DIAGRAMS SHOW TWO UPS UNITS IN PARALLEL. FOR THREE UPS UNITS, FOLLOW THE SAME CONNECTION PRINCIPLE.

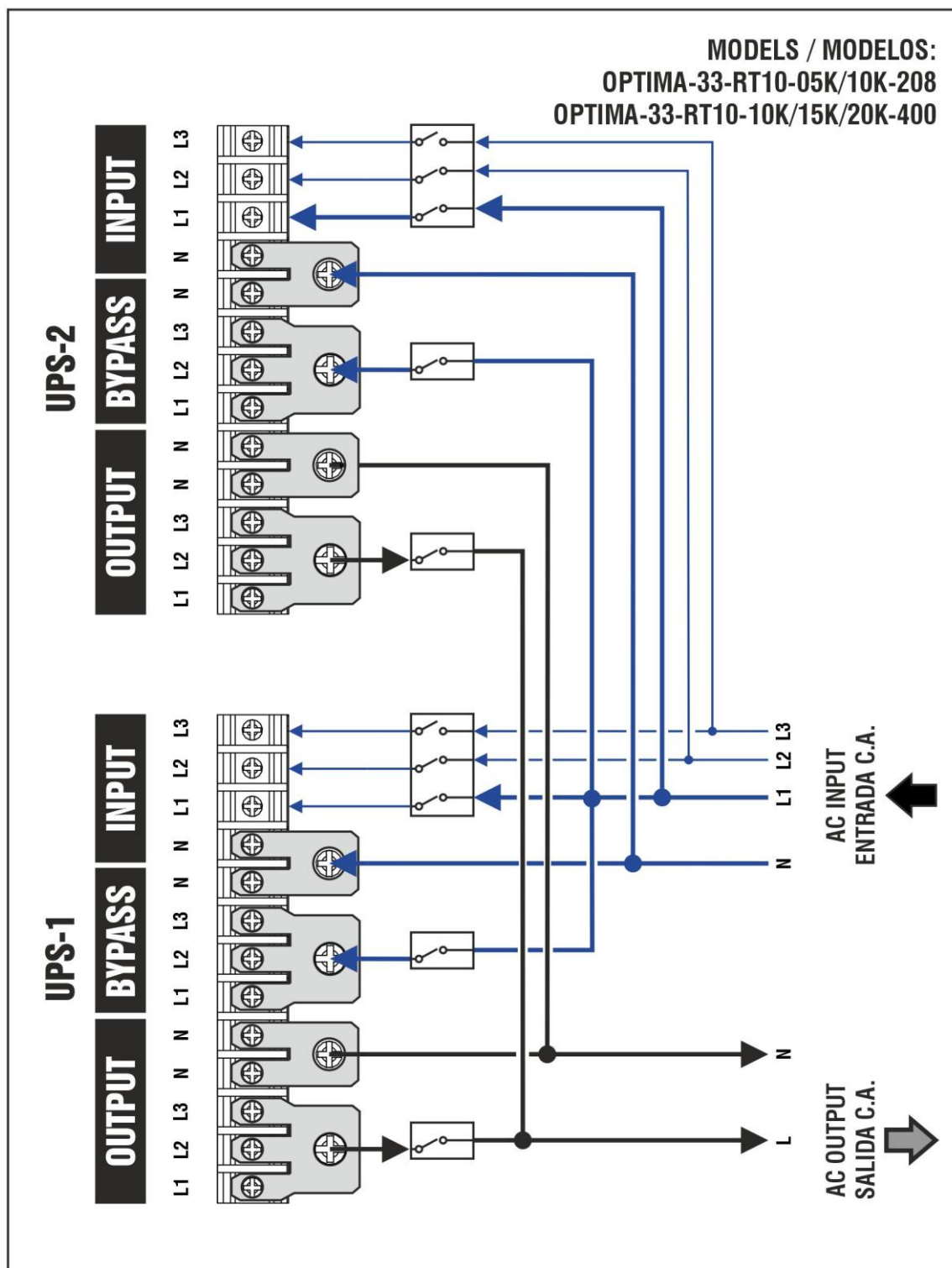
2 UPS UNITS IN PARALLEL, THREE-PHASE INPUT AND OUTPUT



NOTES:

- To connect 3 or 4 UPS units in parallel, follow the same connection principle shown for 2 UPS units.

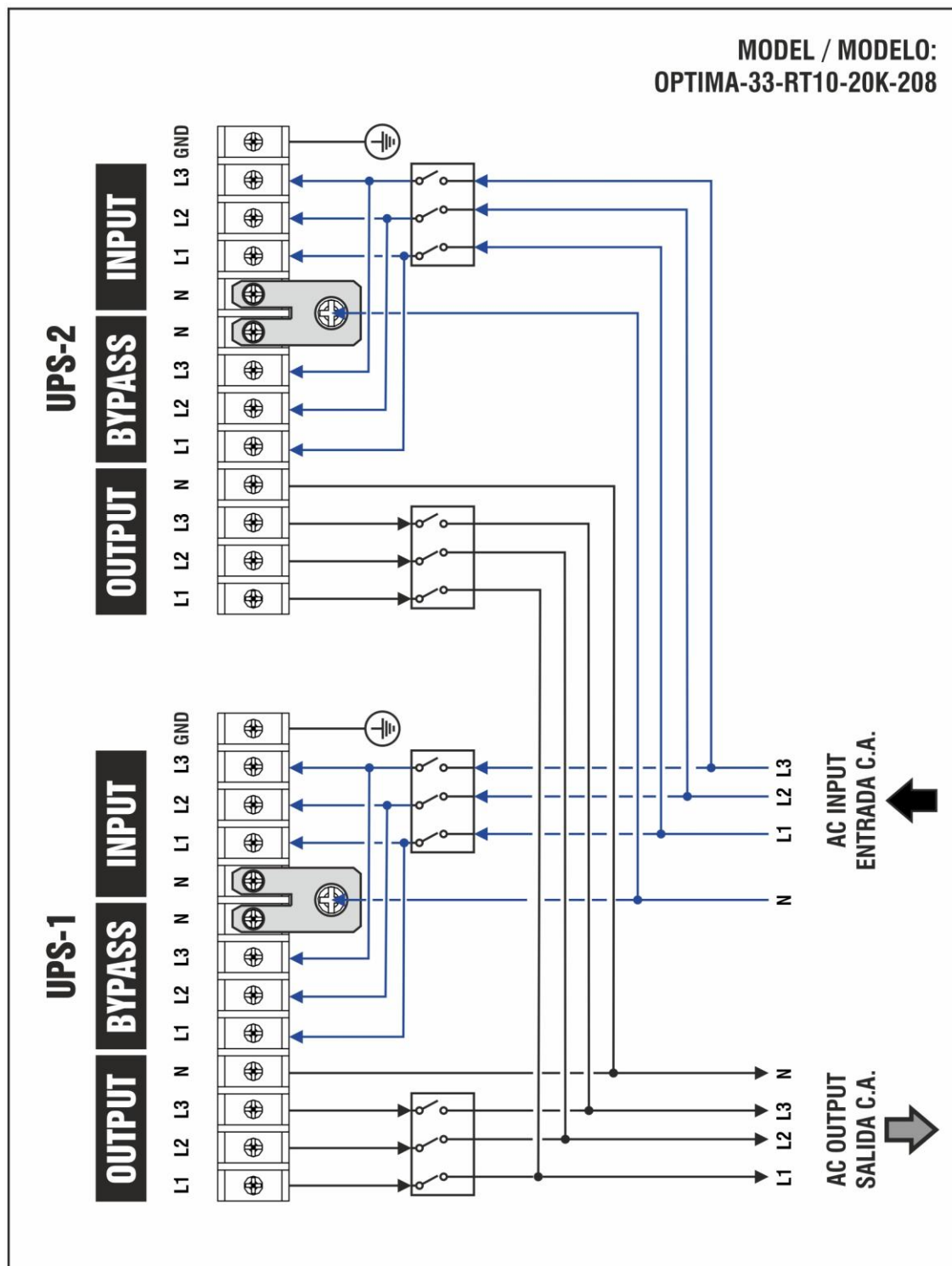
2 UPS UNITS IN PARALLEL, THREE-PHASE INPUT, SINGLE-PHASE OUTPUT



NOTES:

- To connect 3 or 4 UPS units in parallel, follow the same connection principle shown for 2 UPS units.

2 UPS UNITS IN PARALLEL, THREE-PHASE INPUT & OUTPUT



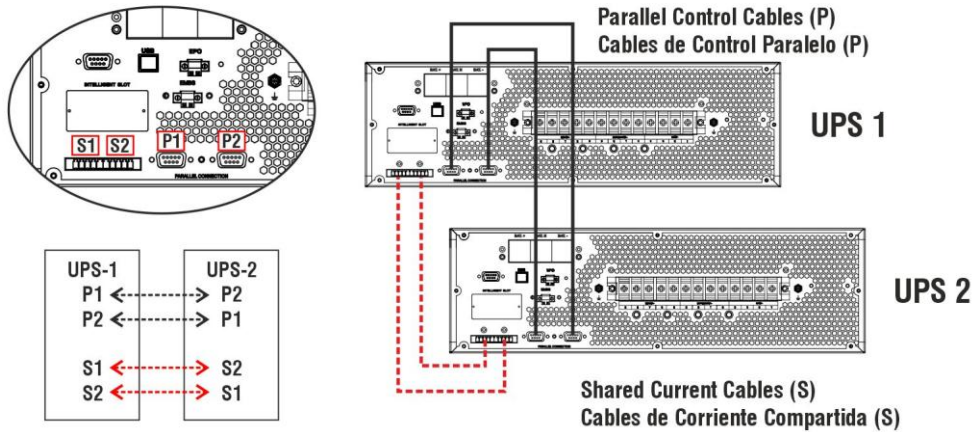
NOTES:

- To connect 3 or 4 UPS units in parallel, follow the same connection principle shown for 2 UPS units.
- This model does not support single-phase output configuration.

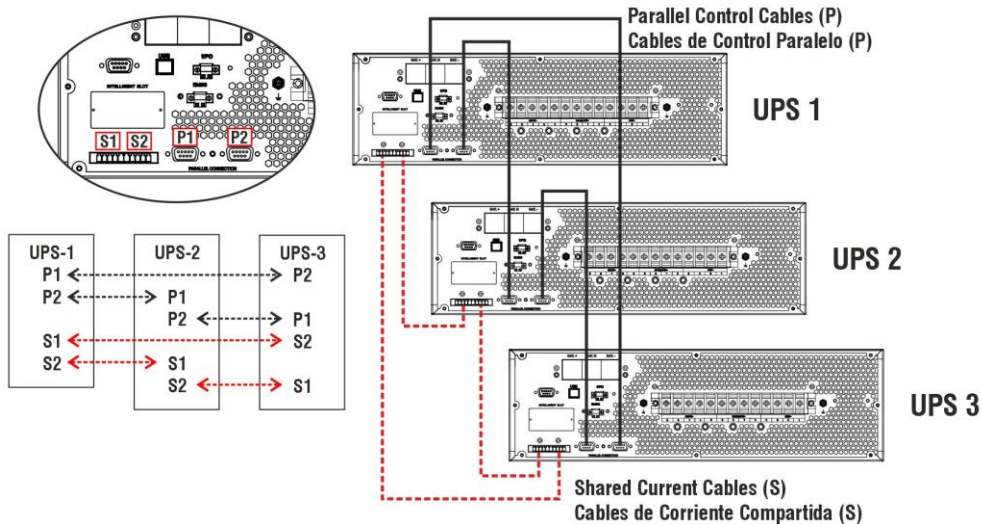
PARALLEL UPS: CONTROL CABLES

Control cable connection diagrams for 2, 3, and 4 UPS units. The connectors are located on the rear panel of each UPS.

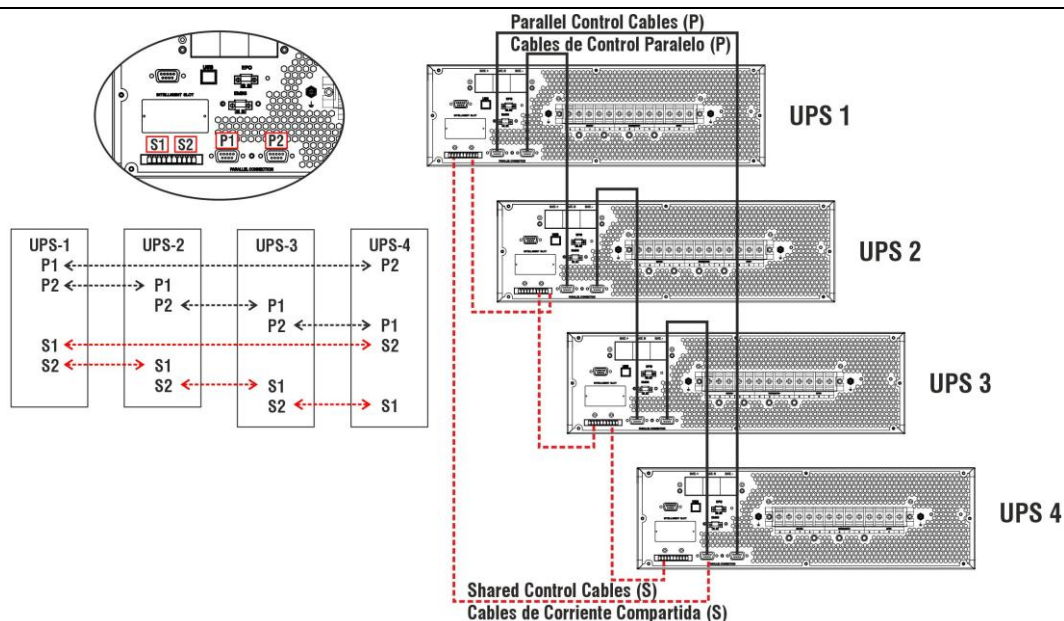
2 UPS



3 UPS



4 UPS



PARALLEL UPS: XBAT CONNECTION

When installing **OPTIMA-33-RT10** units in parallel, special attention must be paid to the connection of the external XBAT battery packs.

If 2 **OPTIMA-33-RT10** units are installed, they may share the same XBAT units or use separate ones without requiring any special configuration.

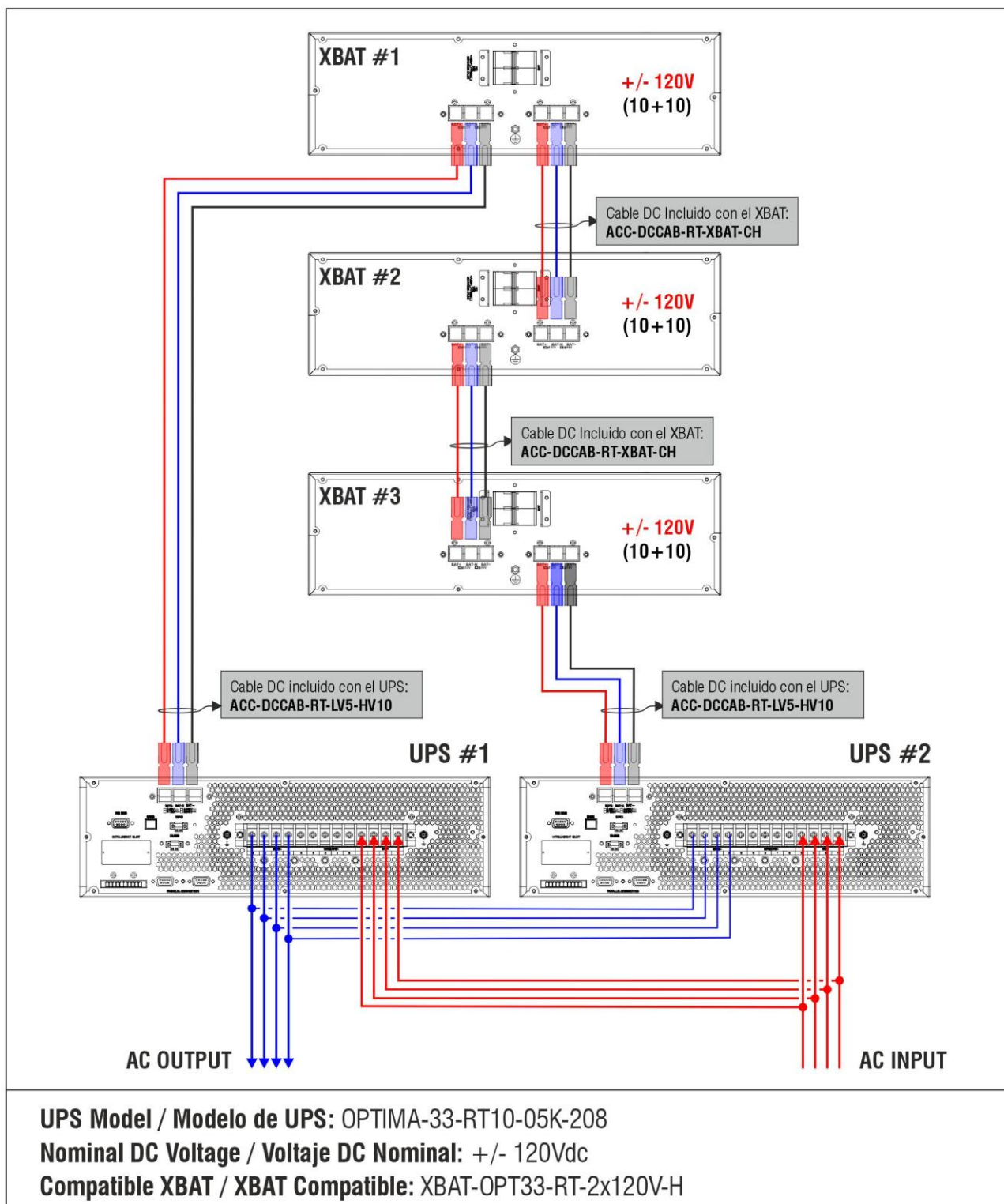
If more than 2 **OPTIMA-33-RT10** units are installed, the XBAT units cannot be shared, as shown in the connection diagrams later in this manual. In this case, each UPS must have its own XBAT connection, as described in the **BATTERY CONNECTION INSTRUCTIONS** section.

The following diagrams show all **OPTIMA-33-RT10** models operating as 2-unit parallel systems with shared batteries.

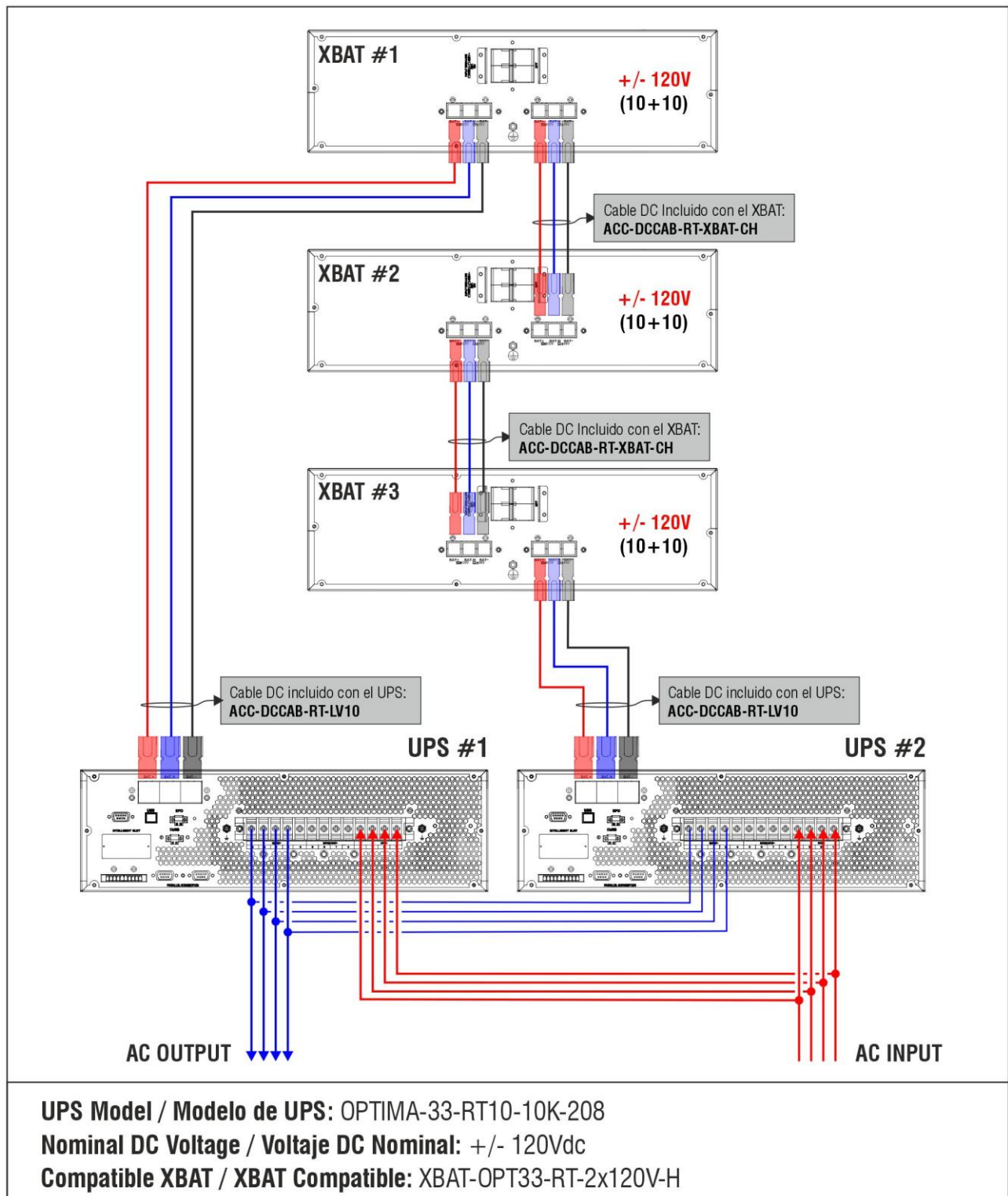
- Each diagram shows the part number (P/N) of the XBAT compatible with the corresponding UPS.
- It also shows the P/Ns of the DC cables compatible with the UPS and corresponding XBAT.
- For each cable, the diagram indicates whether it is supplied with the UPS or the XBAT.
- The number of XBAT units and DC cables required may differ from those shown in the diagrams due to the following factors:
 - a. If the UPS units are connected in parallel only for redundancy, without combining their capacities, the minimum number of XBAT units required is the same as for a single UPS.
 - b. If the UPS units are connected in parallel to increase capacity, the minimum number of XBAT units required is twice that required for a single UPS.
 - c. Based on the two previous points, additional XBAT units may be added to achieve the required backup time.
 - d. The DC cables used to connect one XBAT to the next are included with each XBAT, so some cables may remain unused depending on the selected operating configuration.

To prevent connection failures that could cause UPS or XBAT malfunctions, use only the XSMART DC cables supplied with the equipment.

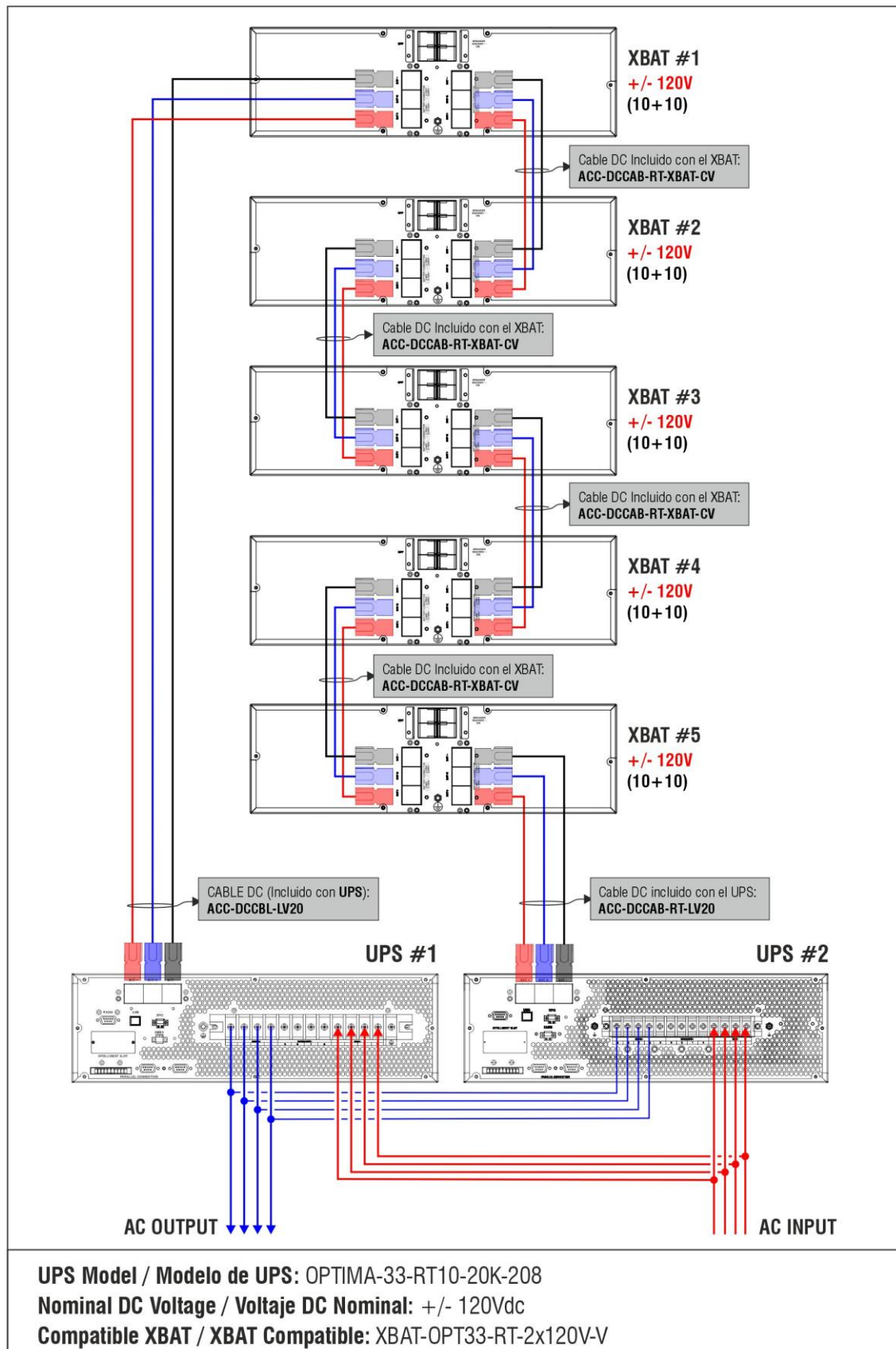
OPTIMA-33-RT10-05K-208 – TWO-UPS PARALLEL SYSTEM WITH SHARED BATTERIES



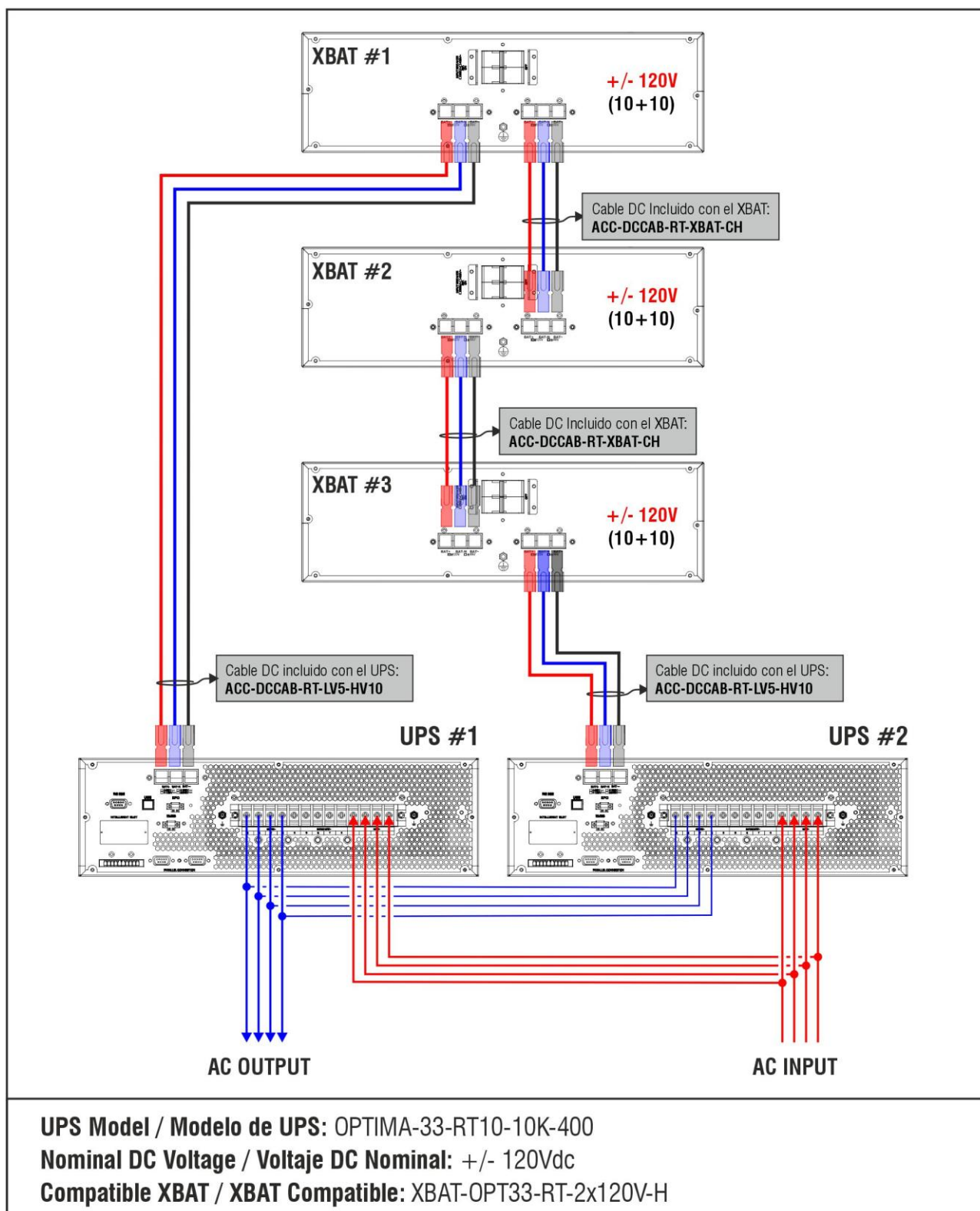
OPTIMA-33-RT10-10K-208 – TWO-UPS PARALLEL SYSTEM WITH SHARED BATTERIES



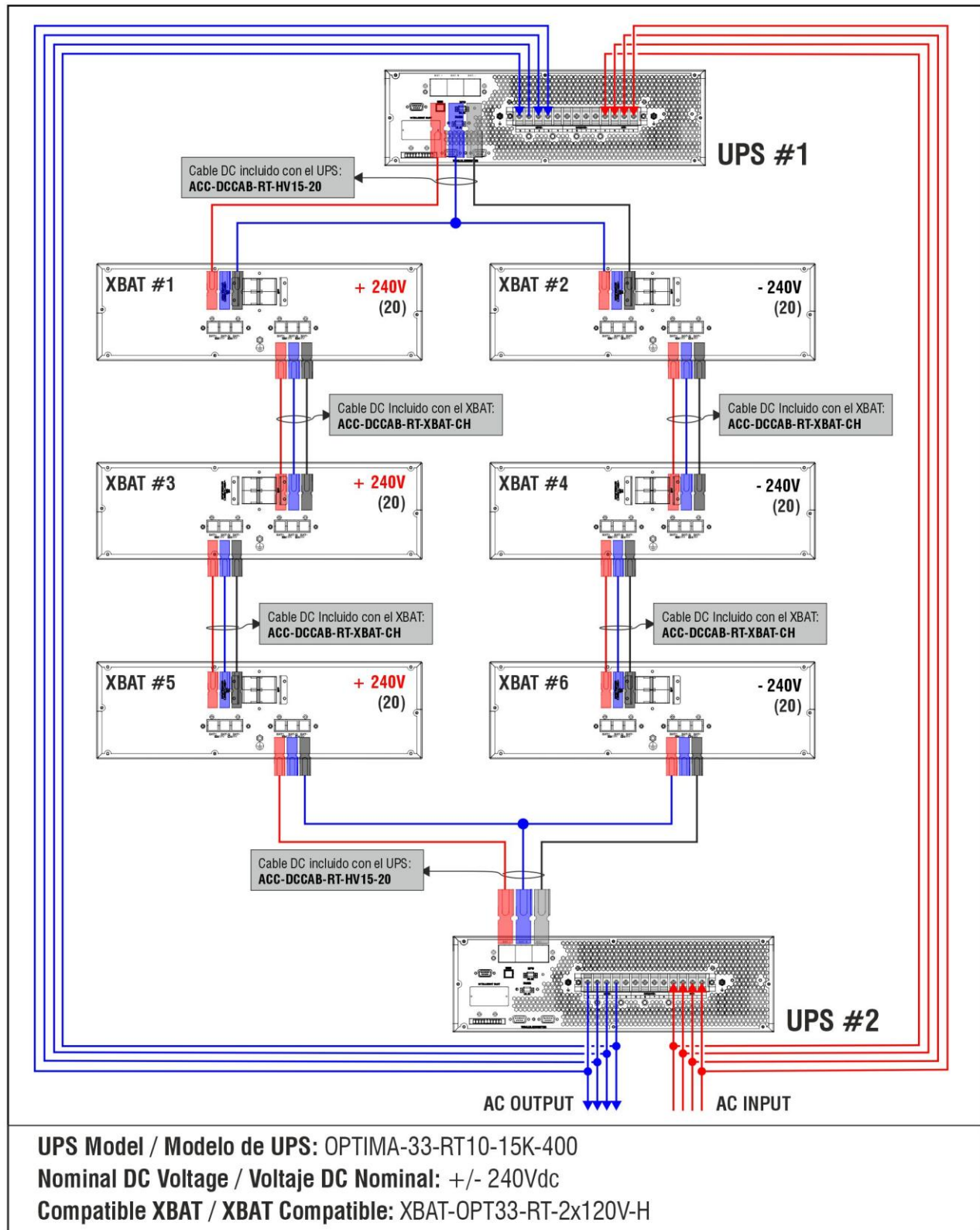
OPTIMA-33-RT10-20K-208 – TWO-UPS PARALLEL SYSTEM WITH SHARED BATTERIES



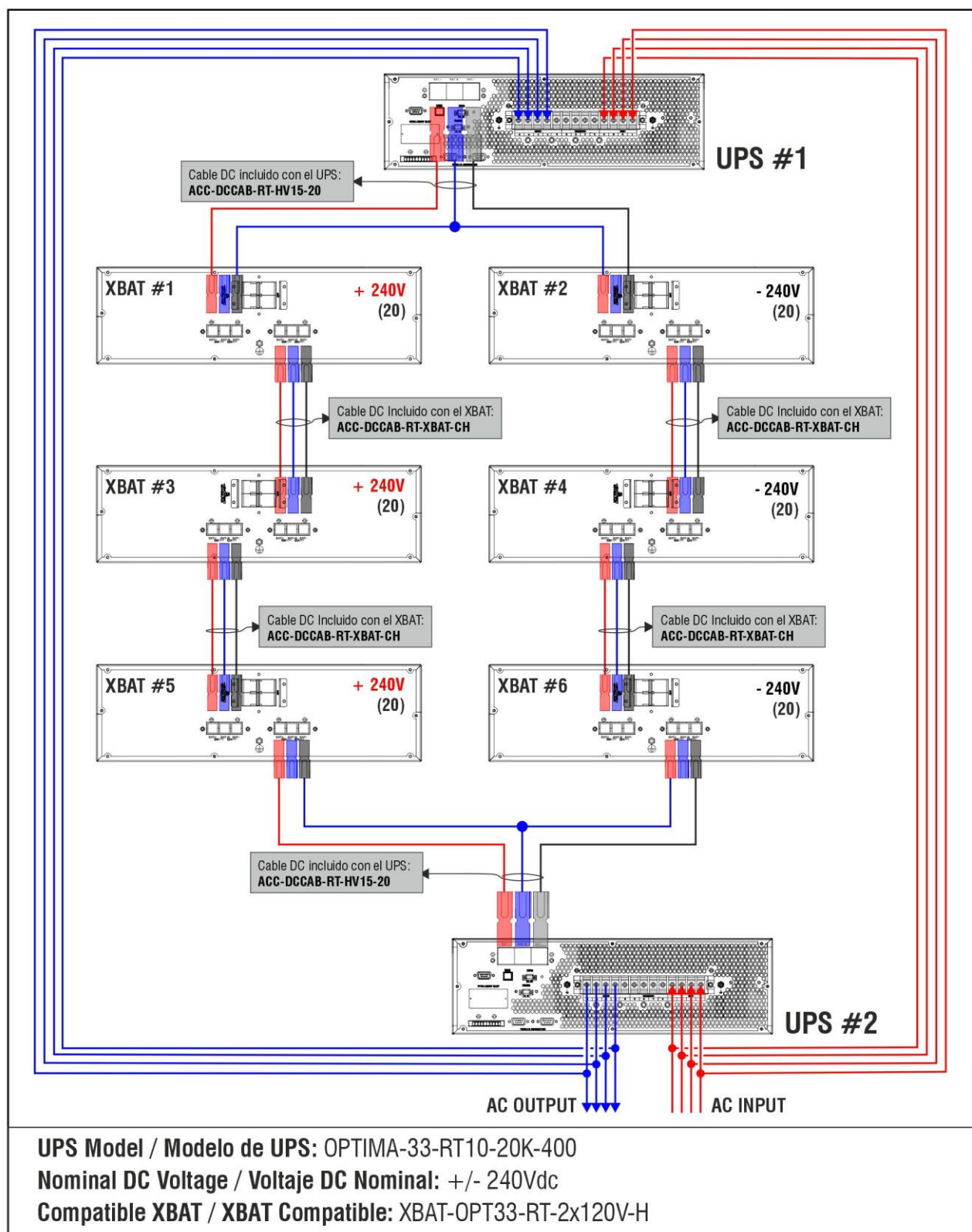
OPTIMA-33-RT10-10K-400 – TWO-UPS PARALLEL SYSTEM WITH SHARED BATTERIES



OPTIMA-33-RT10-15K-400 – TWO-UPS PARALLEL SYSTEM WITH SHARED BATTERIES

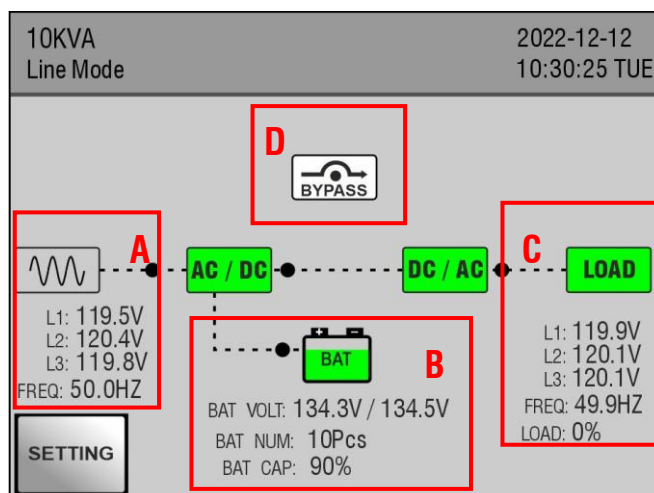


OPTIMA-33-RT10-20K-400 – TWO-UPS PARALLEL SYSTEM WITH SHARED BATTERIES



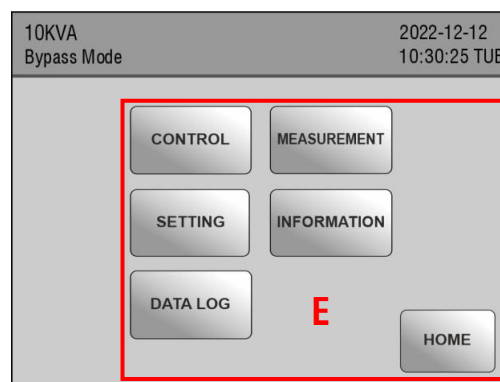
8.- OPERATING INTERFACE

FRONTAL PANEL: COLOR TOUCHSCREEN



The previous image shows the operation interface of the OPTIMA-33-RT10 family: an efficient 3.5-inch color touchscreen that displays relevant UPS information divided into operational zones identified as A, B, C, D, and E.

Pressing the “SETTING” icon opens the interactive menu, where you can monitor, configure, and control UPS operation, as shown in the image on the right.



OPERATIONAL ZONES OF THE SCREEN

- **ZONE A:** Voltages and frequency of the three phases of the main AC line
- **ZONE B:** Voltage, capacity, and number of batteries. Battery voltage is displayed as **BAT + / BAT-**.
- **ZONE C:** Voltages and frequency of the UPS's three output phases, as well as the load percentage connected to the output.
- **ZONE D:** Static bypass.
- **ZONE E:** Icons that provide access to the UPS menus. Available options:

CONTROL	Access to the Control menu from where the UPS can be started and stopped	MEASUREMENT	Access to real-time measurement screens
SETTING	Access to the UPS parameter configuration menu	INFORMATION	Access to the UPS information screens.
DATA LOG	Access to the UPS event report	HOME	Access to main screen from any point in the Menus

OPERATIONAL ICONS	ON	OFF
Rectifier (PFC)		
Inverter		
Internal Electronic Bypass		

BATTERY ICON:

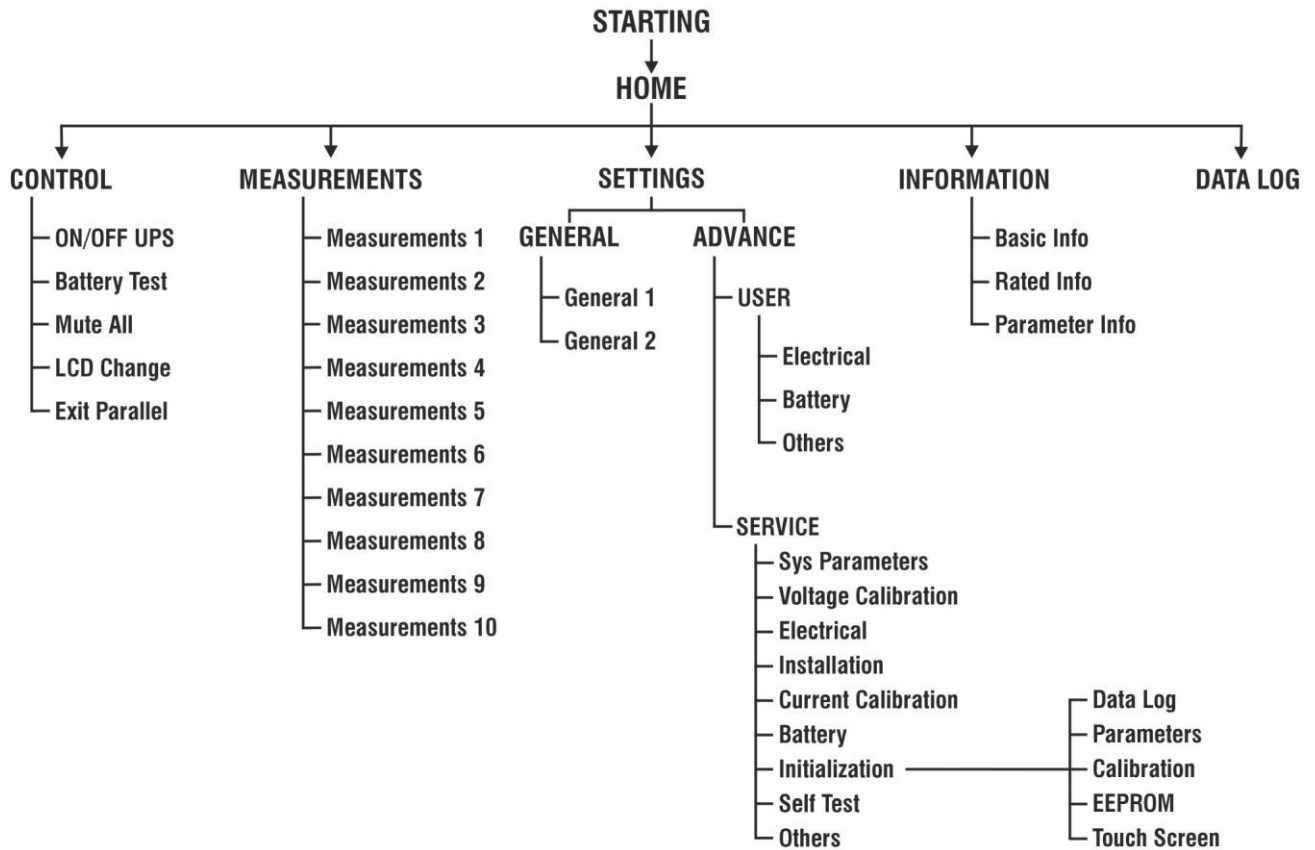
The battery icon changes color according to the battery capacity and whether the battery is charging or discharging, as explained in the following table:

Icon	Color	Battery Capacity While:	
		Charging	Discharging
	Red	0% - 25%	0% - 20%
	Orange	25% - 50%	20% - 40%
	Yellow	50% - 80%	40% - 50%
	Green	80% - 100%	60% - 100%
	None	Battery disconnected or not detected	Battery disconnected or not detected

The next section explains UPS configuration and operation.

9.- UPS OPERATION & CONFIGURATION

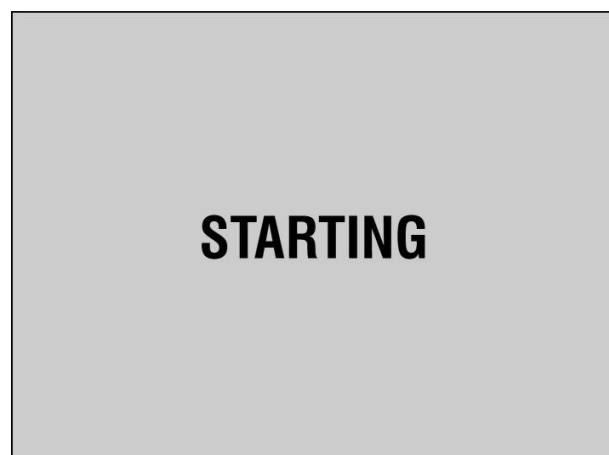
This UPS family features a versatile and powerful touchscreen with icons that provide access to various UPS configuration and operation menus, as explained in the previous section. The UPS configuration and operation menu is structured as shown in the following diagram:



The different operations that can be performed with this UPS, including its configuration procedures, are described below.

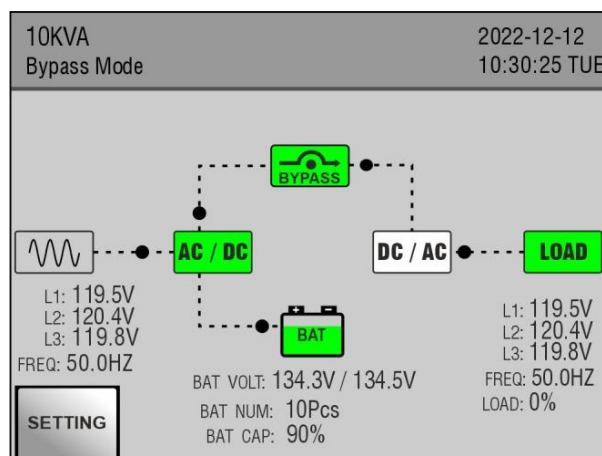
POWERING UP THE UPS

After ensuring that the UPS is properly installed (see the Startup and Initialization section), it can be powered on. At this point, the screen will light up, indicating that the UPS is performing its self-diagnosis and initialization.

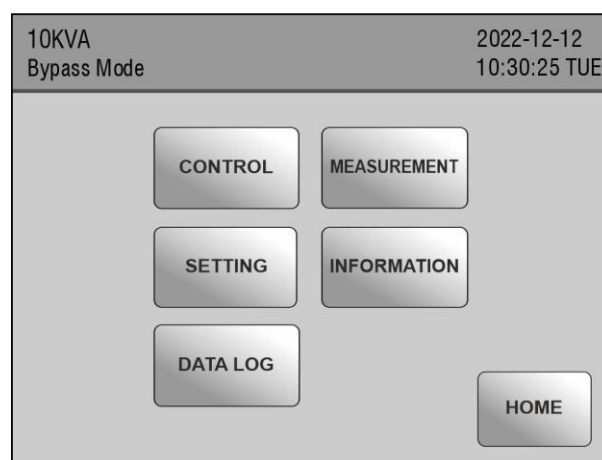


After a few seconds, the UPS should reach the state shown on the right, indicating that everything is operating correctly and that the UPS is ready to be powered on.

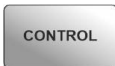
Tap the  icon to access the screen shown below.

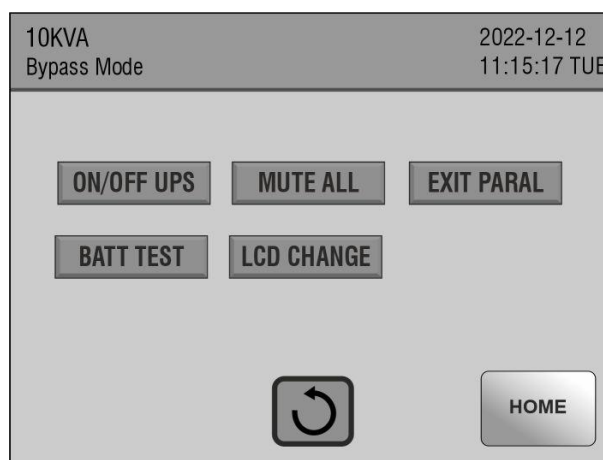


From this screen, the user can access all available menus, which are explained below.

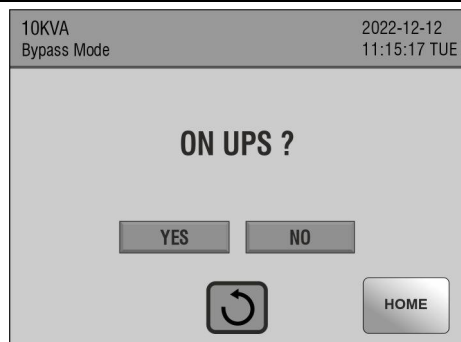
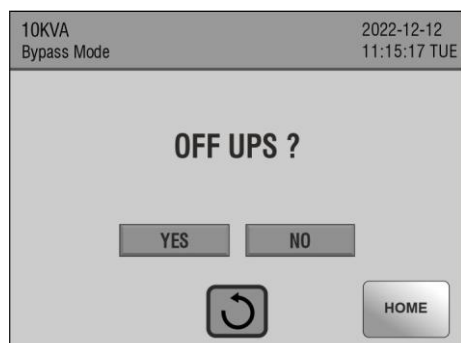
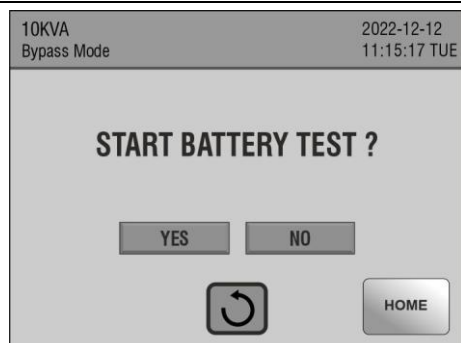
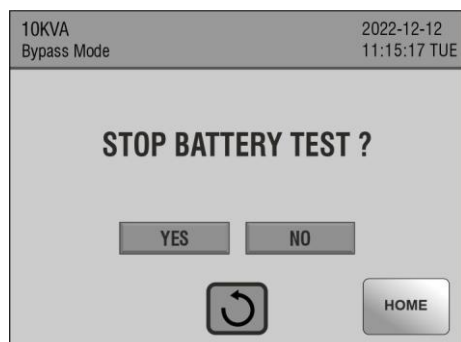


CONTROL MENU:

You can access this menu by tapping the  icon. Tapping the  icon takes you back to the main screen from any other screen. The initial screen of this menu is shown below:



CONTROL MENU – FIRST SCREEN

PARAMETERS OF THIS MENU:**ON/OFF UPS****If the UPS is Off:**Confirmation Request (*On UPS?*)**YES:** Powers on UPS and returns to the main screen**NO:** Cancels the operation and returns to the menu screen. Returns to previous screen.**If the UPS is On:**Confirmation Request (*Off UPS?*)**YES:** Powers off UPS and returns to the main screen**NO:** Cancels the operation and returns to the menu screen. Returns to the previous screen.**BATTERY TEST****If the UPS is NOT testing Batteries:**Confirmation Request (**START BATTERY TEST?**)**YES:** Starts the test, displays the message "BATT Test," and, upon completion, displays the test result.**NO:** Cancels the operation and returns to the menu screen. Returns to the previous screen.**If the UPS is testing Batteries:**Confirmation Request (**STOP BATT TEST?**)**YES:** Interrupts the test.**NO:** Keeps the test running. Returns to the previous screen.

MUTE ALL

If alarms are not Muted:

Confirmation Request (**Mute All?**)

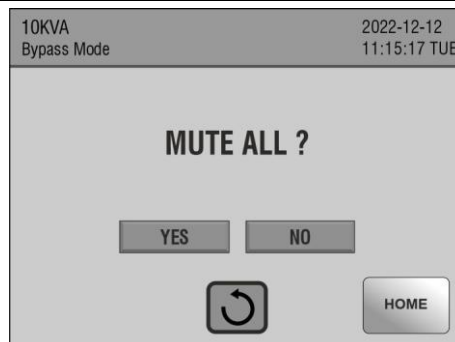


YES: Mutes all alarms. The  Icon will be displayed in the top-left corner of the screen.

NO: Cancels the operation and returns to the menu screen.



Returns to the previous screen.



If alarms are Muted:

Confirmation Request (**Cancel Mute All?**)

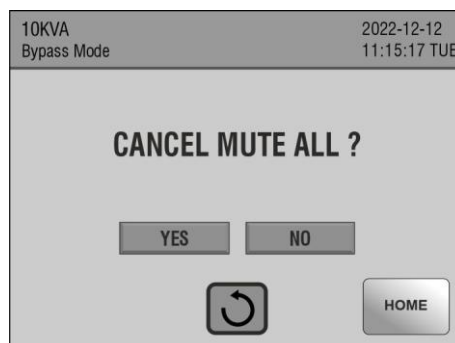


YES: Unmutes alarms. The  Icon will disappear from the top-left corner of the screen.

NO: Cancels the operation and returns to the menu screen.



Returns to the previous screen.



LCD ORIENTATION

If the LCD is in Rack mode (Horizontal):

Confirmation request (Tower Display?)

YES: Sets the LCD to Tower Mode (Vertical).

NO: Returns to the previous screen.



Returns to the previous screen.



If the LCD is in Tower Mode (Vertical):

Confirmation request (**Rack Display?**)

YES: Sets the LCD to Rack Mode (Horizontal).

NO: Returns to the previous screen.



Returns to the previous screen.



EXIT PARALLEL (See Safety Note)

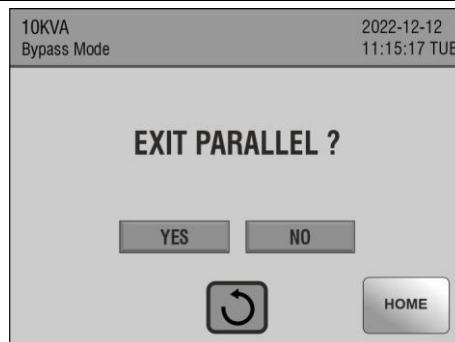
If the UPS is working in a parallel system:

Confirmation Request (**Exit Parallel?**)

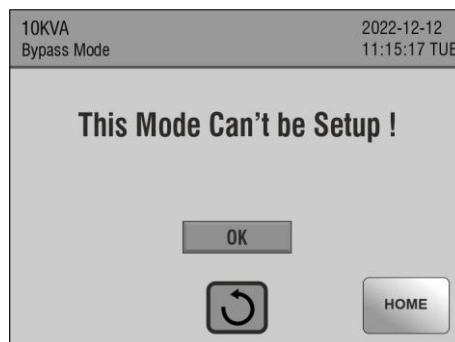
YES: Removes the UPS from the parallel system, turns off its output, and places it in Standby Mode.

NO: Cancels the operation and returns to the menu screen.

 Returns to the previous screen.



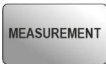
If the UPS is not operating in a parallel system and this command is attempted, the screen on the right will be displayed, indicating that the operation cannot be performed.



Safety Note:

- When removing a UPS from a parallel system, the system will remain powered by the remaining UPS units. Therefore, several factors must be considered. Before performing this procedure, we strongly recommend reviewing Section 12.- OPERATION: PARALLEL UPS in this manual to ensure that it is carried out safely.

MEASUREMENT MENU:

You can access this menu by tapping the  icon. Tapping the  icon takes you back to the main screen from any other screen.

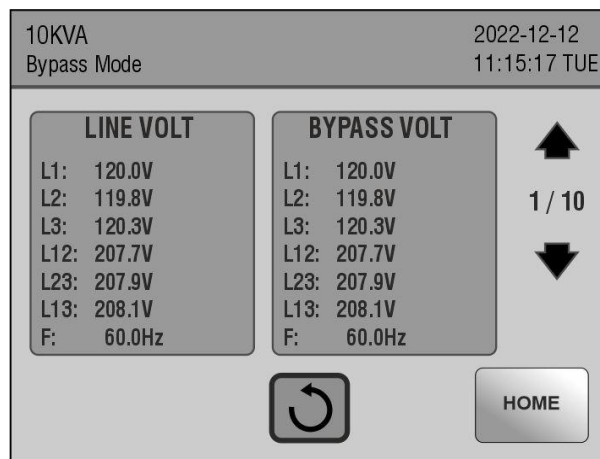
This menu includes 10 screens. The  and  arrow icons can be used to scroll through them. The  icon takes you back to the previous screen. The initial screen of this menu is shown below:

MEASUREMENT – PAGE 1 / 10

DESCRIPTION OF LISTED VALUES:

LINE VOL: Real-time input phase voltages (L1, L2, and L3), phase-to-phase voltages (L1-L2, L1-L3, and L2-L3), and input frequency.

BYPASS VOL: Real-time bypass phase voltages (L1, L2, and L3), phase-to-phase voltages (L1-L2, L1-L3, and L2-L3), and bypass input frequency.

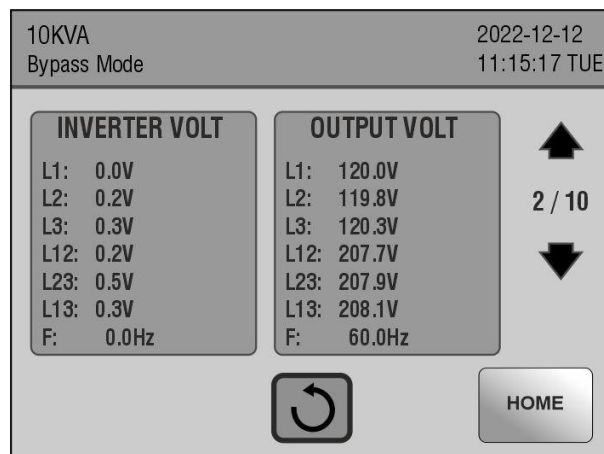


MEASUREMENT – PAGE 2 / 10

DESCRIPTION OF LISTED VALUES:

INVERTER VOL: Real-time inverter phase voltages (L1, L2, and L3), phase-to-phase voltages (L1-L2: L12, L1-L3: L13, and L2-L3: L23), and inverter frequency.

OUTPUT VOL: Real-time output phase voltages (L1, L2, and L3), phase-to-phase voltages (L1-L2: L12, L1-L3: L13, and L2-L3: L23), and output frequency.

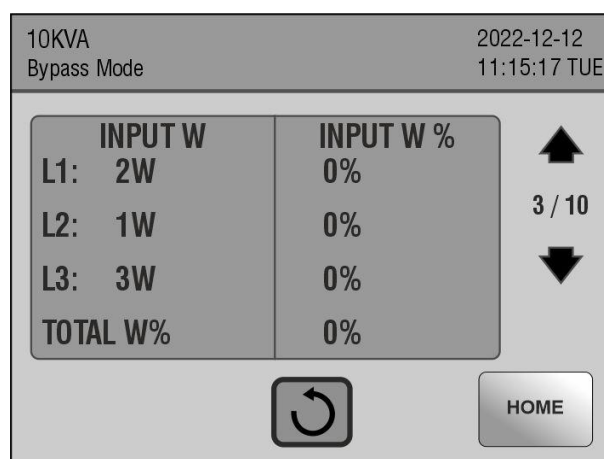


MEASUREMENT – PAGE 3 / 10

DESCRIPTION OF LISTED VALUES:

INPUT W: Input power in Watts, on phases L1, L2, and L3.

INPUT W (%): Input power percentage on phases L1, L2, and L3.

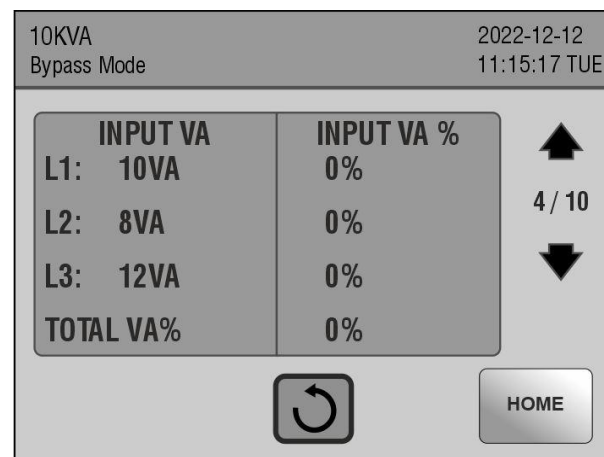


MEASUREMENT – PAGE 4 / 10

DESCRIPTION OF LISTED VALUES:

INPUT VA: Input apparent power, in volt-amperes (VA), on phases L1, L2, and L3.

INPUT VA (%): Input apparent power percentage on phases L1, L2, and L3.

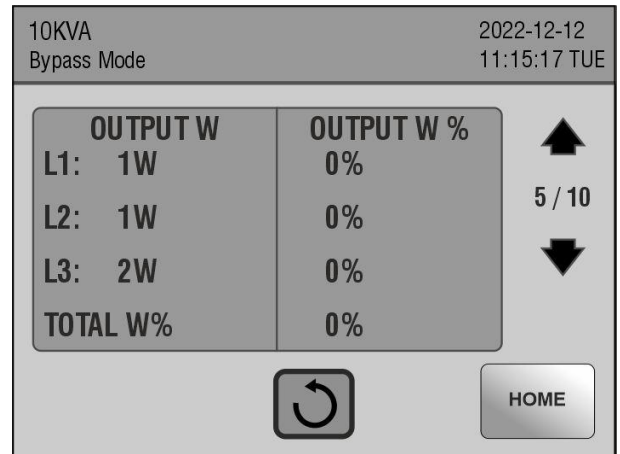


MEASUREMENT – PAGE 5 / 10

DESCRIPTION OF LISTED VALUES:

OUTPUT W: Output power, in Watts, on phases L1, L2, and L3.

OUTPUT W (%): Output power percentage on phases L1, L2, and L3.

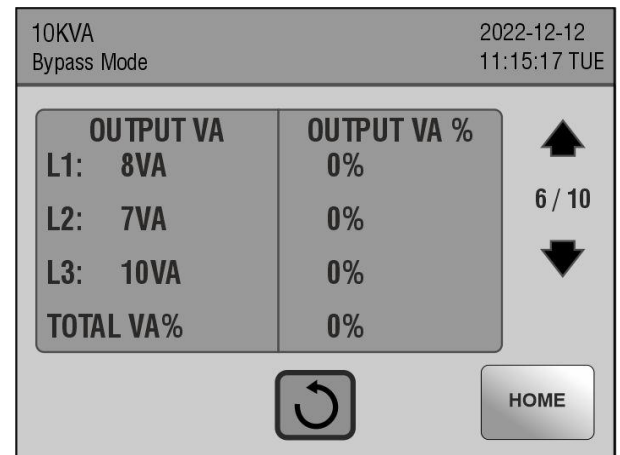


MEASUREMENT – PAGE 6 / 10

DESCRIPTION OF LISTED VALUES:

OUTPUT VA: Output apparent power, in volt-amperes (VA), on phases L1, L2, and L3.

OUTPUT VA (%): Output apparent power percentage on phases L1, L2, and L3.

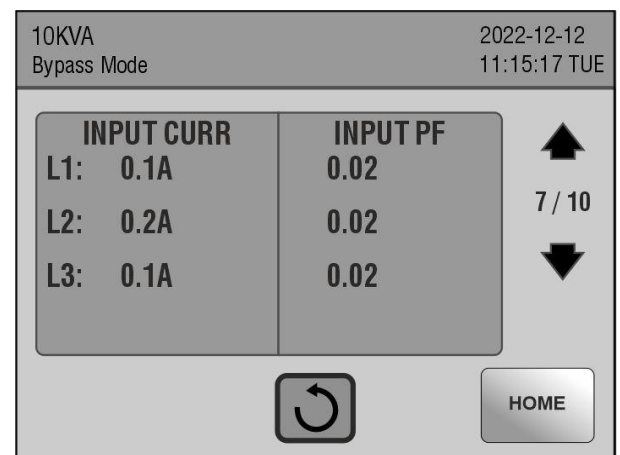


MEASUREMENT – PAGE 7 / 10

DESCRIPTION OF LISTED VALUES:

INPUT CURR: Real-time input current on phases L1, L2, and L3.

INPUT PF: UPS Input power factor.

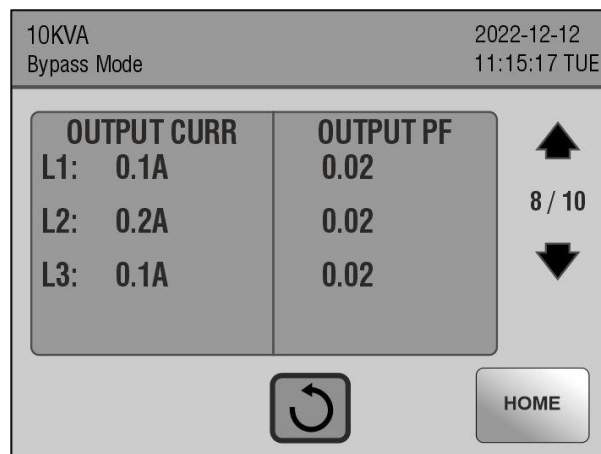


MEASUREMENT – PAGE 8 / 10

DESCRIPTION OF LISTED VALUES:

OUTPUT CURR: Real-time output current on phases L1, L2, and L3.

OUTPUT PF: Power factor of the load connected to the UPS output.



MEASUREMENT – PAGE 9 / 10

DESCRIPTION OF LISTED VALUES:

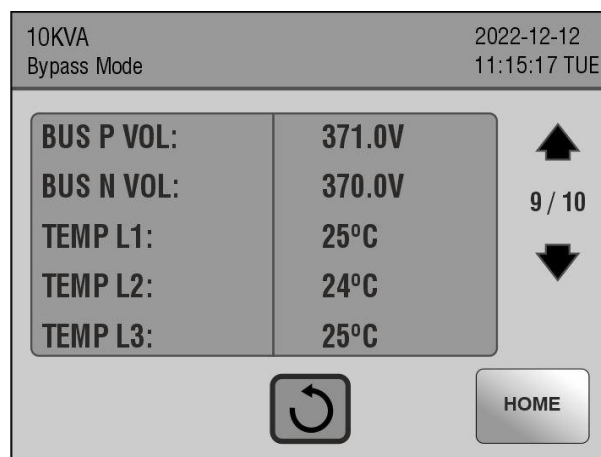
BUS P VOL: Voltage on the “P” line of the UPS internal bus.

BUS N VOL: Voltage on the “N” line of the UPS internal bus.

TEMP L1: Temperature on phase L1.

TEMP L2: Temperature on phase L2.

TEMP L3: Temperature on phase L3.



MEASUREMENT – PAGE 10 / 10

DESCRIPTION OF LISTED VALUES:

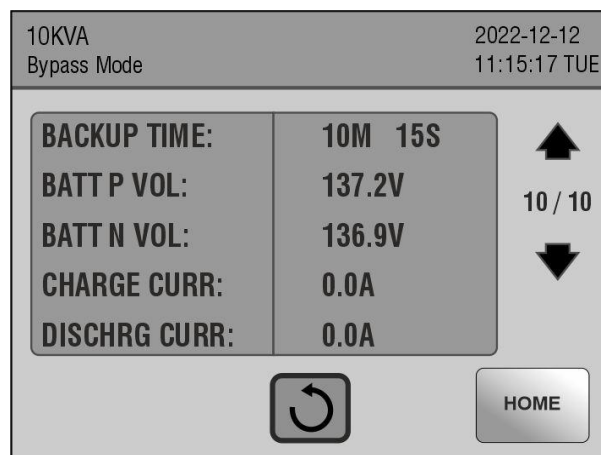
Backup Time: Estimated backup time available from the UPS.

BATT P VOL: Voltage on the “P” (+) line of the battery system.

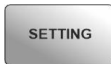
BATT N VOL: Voltage on the “N” (-) line of the battery system.

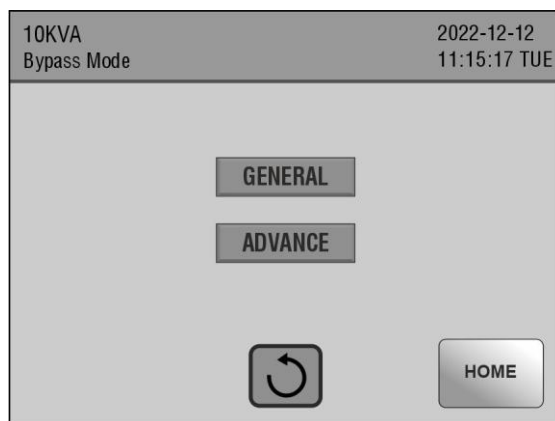
CHARG CURR: Battery discharge current.

DISCHG CURR: Battery discharge current.



SETTINGS MENU:

You can access this menu by tapping the  icon. Tapping the  icon takes you back to the main screen from any screen. As this menu includes several screens, the  and  arrow icons can be used to scroll through them. The  icon takes you back to the previous screen. The initial screen of this menu is shown below:



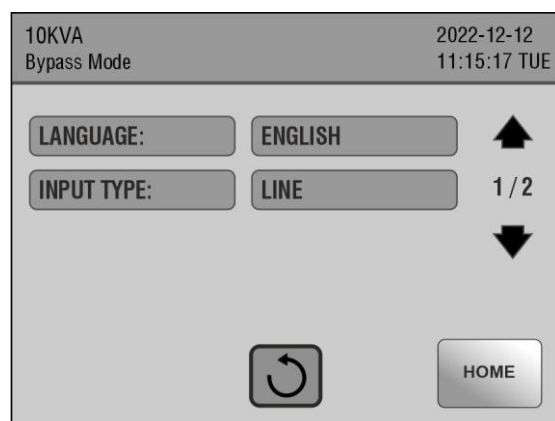
SETTINGS MENU – MAIN SCREEN

- **GENERAL:** Basic UPS information unrelated to operating parameters can be configured here.
- **ADVANCE:** This section is used to configure the UPS operating parameters. Therefore, a password is required for access. There are two access levels with different scopes: User and Service, both of which are explained later.

IMPORTANT NOTE – SAVING PARAMETERS CHANGES

To save all changes made in the Settings menu, the UPS must be in either **Bypass Mode** or **Standby Mode**, depending on its configuration, but never in Online Mode, with batteries connected. Then, the input power must be disconnected while keeping the batteries connected, and you must wait until the UPS turns off the LCD. After 10 seconds, the batteries can be disconnected, and the unit can be packaged if necessary. If the batteries are disconnected before the LCD turns off or before the 10 seconds have elapsed, the changes will not be saved, and the UPS will revert to its previous settings.

SETTING → GENERAL

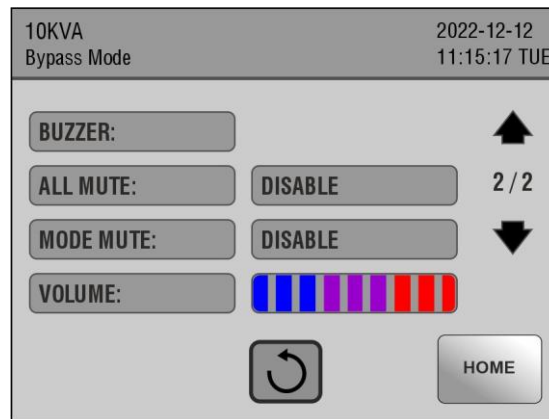


SCREEN: SETTING → GENERAL – PAGE 1 / 2

GENERAL MENU PARAMETERS – PAGE 1 / 2:

LANGUAGE: Sets the UPS screen language. There are three available options: English (default), Simplified Chinese, and Traditional Chinese.

INPUT TYPE: Sets the UPS power source to AC Line (**default**) or **Generator**. Selecting Generator extends the input frequency range to 40–70 Hz. The selected value will be displayed on the Home screen.



SCREEN: SETTING → GENERAL – PAGE 2 / 2

GENERAL MENU PARAMETERS – PAGE 2 / 2:

BUZZER: When you press this button, confirmation will be requested: YES or NO.

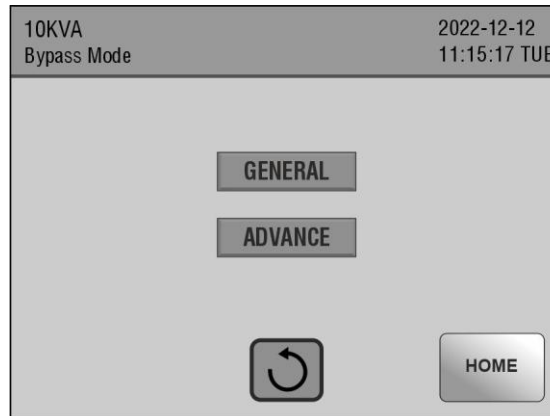
- YES: Activates the UPS buzzer, which will sound when the UPS enters an alarm state.
- NO: Deactivates the UPS buzzer, which will not sound when the UPS enters an alarm state.

ALL MUTE: When enabled, all failure and warning audible alarms will be muted. Default: Disabled.

MODE MUTE: When enabled, audible warnings for operating mode changes will be muted. Default: Disabled.

VOLUME: Tap the screen to adjust the volume of the UPS alarm.

SETTING → ADVANCE → USER



SCREEN: SETTING → ADVANCE

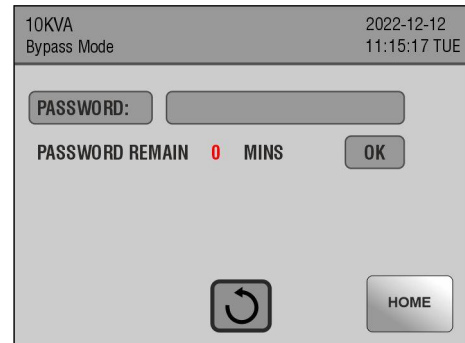
From this screen, two different ADVANCED menu levels can be accessed, depending on the password entered. The procedure for accessing the **ADVANCED → USER** menu is explained below.

If password **0000** is entered:

Access to **SETTING → ADVANCE → USER** Menu



Returns to the previous screen

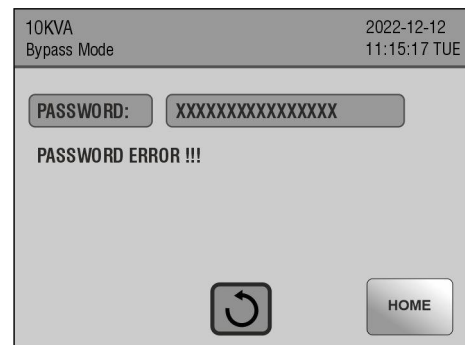


If an incorrect password is entered:

Notification message (**Password Error!!**) is displayed, and password must be entered again.



Returns to the previous screen



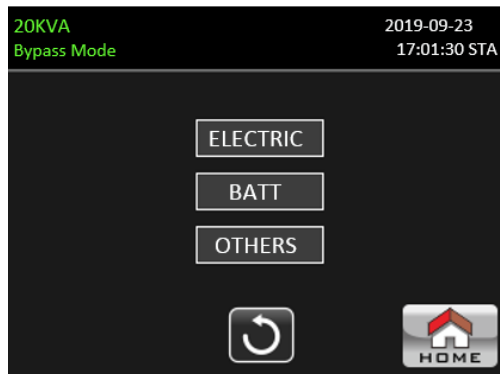
SETTING → ADVANCE → USER



Tapping the **HOME** icon returns to the Home screen from any screen.



Tapping the **Return** icon takes you back to the previous screen. The initial screen of this menu is shown below:



SCREEN: SETTING → GENERAL

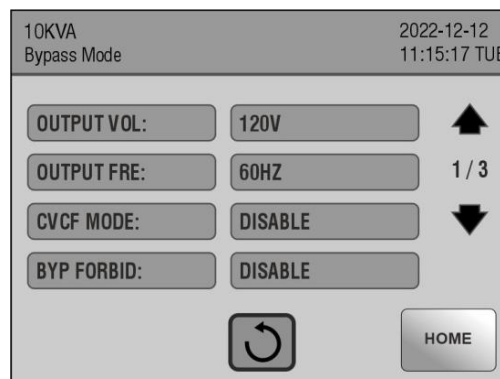
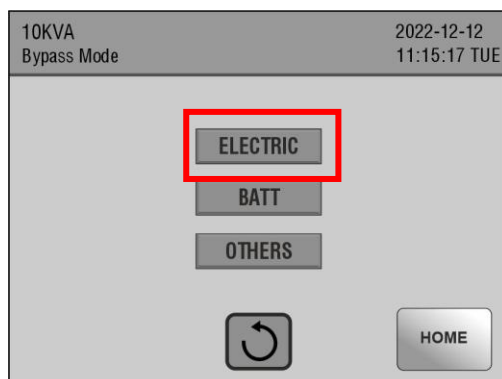
From this screen, three submenus can be accessed: ELECTRIC, BATT, and OTHERS, as explained below.

SETTING → ADVANCE → USER → ELECTRIC

ACCESS:

PAGE 1 / 3

ELECTRIC



PARAMETERS IN THIS MENU:

OUTPUT VOL: Sets the UPS nominal voltage. Available options:

- 400/230V Models: 208 V, 220 V, 230 V, 240 V
- 208/120V Models: 120 V, 127 V

OUTPUT FRE: Sets the UPS nominal output frequency. Available options: 50 Hz and 60 Hz.

CVCF MODE (Frequency Conversion Mode)

- Enable: Enables Frequency Conversion Mode. The output frequency will be set to the value configured in the previous parameter, provided that the input frequency remains between 40 Hz and 70 Hz.
- Disable: Factory default setting. Disables Frequency Conversion Mode. The UPS output frequency will synchronize with the bypass input frequency within the valid range: 45 to 55 Hz for 50 Hz systems and 55 to 65 Hz for 60 Hz systems.

IMPORTANT NOTES ABOUT FREQUENCY CONVERSION FUNCTION:

- If the Frequency Conversion function is enabled to generate an output frequency different from the input frequency, the UPS bypass will be automatically disabled. However, each time the UPS is powered on, there will be a two-second transient period during which the UPS will operate in Bypass Mode, passing power directly from the input to the output.
- If the UPS trips the input circuit breaker when powered on, it may be configured to operate at a frequency different from that of the system to which it is connected. In this case, follow the procedure below:

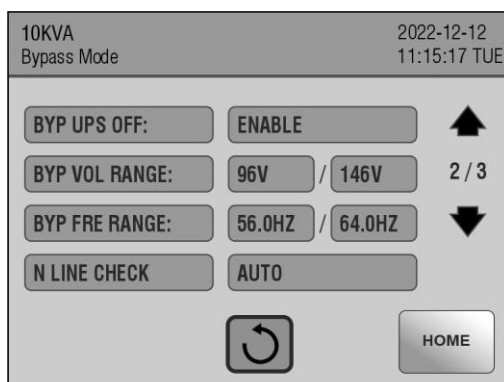
Power on the UPS using the **COLD START POWER ON PROCEDURE** explained in Section 10.

Once the UPS screen is on and the unit is operating in Battery Mode, go to the **SETTING→ADVANCE→USER→Electric** menu and review the following parameters:

- **CVCF MODE:** If this function is not required, set it to “Disable.” The UPS will then synchronize with the input frequency.
- **OUTPUT FRE:** If **CVCF MODE** is required, set the **OUTPUT FRE** parameter to the same value as the input frequency.

BYPASS FORBID: Disables UPS bypass operation.

- Enable: Disables bypass operation; bypass cannot be used under any circumstances.
- Disable: Allows bypass operation according to the UPS configuration. This is the factory default setting.



SCREEN: SETTING → ADVANCE → USER → ELECTRIC – PAGE 2 / 3

PARAMETERS IN THIS MENU:

Bypass UPS OFF: Determines whether the UPS operates in Bypass Mode when it is turned off. This setting applies only when the **BYPASS FORBID** parameter is disabled.

- Enable: When the UPS is turned off, it continues supplying power to the output through the bypass line. This is the factory default setting.
- Disable: When the UPS is turned off manually, the bypass is disabled and the output is also turned off.

Bypass Voltage Range: Sets the valid voltage range for Bypass Mode.

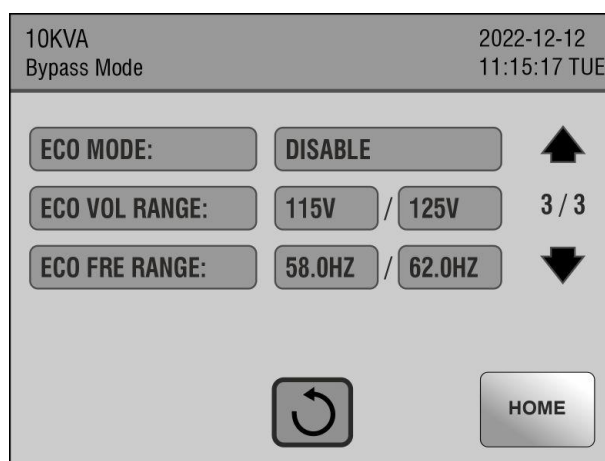
- 400/230V Models: Low-voltage limit range: 176 V to 209 V. High-voltage limit range: 231 V to 264 V.
- 208/120V Models: Low-voltage limit range: 96 V to 110 V. High-voltage limit range: 130 V to 146 V.

Bypass FRE Range: Sets the valid frequency range for Bypass Mode.

- 50 Hz Systems: 46 Hz to 54 Hz.
- 60 Hz Systems: 56 Hz to 64 Hz.

NEUTRAL LINE CHECK: Configures the neutral-loss detection function.

- Disable: Disables this function. The UPS will not detect a loss of the neutral connection.
- Auto: Enables neutral-loss detection. If a neutral loss is detected, an alarm is generated and, if the UPS is on, it switches to Battery Mode. When the neutral connection is restored, the alarm is cleared and the UPS automatically returns to Normal Mode.
- Check: Enables neutral-loss detection during UPS startup. If a neutral loss is detected, an alarm is generated and, if the UPS is on, it switches to Battery Mode. When the neutral connection is restored, the alarm is not cleared automatically, and the UPS does not automatically return to Normal Mode.



SCREEN: SETTING → ADVANCE → USER → ELECTRIC – PAGE 3 / 3

PARAMETERS IN THIS MENU:

ECO Mode: Enables or disables ECO Mode. The factory default setting is **Disable**.

ECO VOL Range: Sets the valid voltage range for ECO Mode.

- Low Limit: From 5 V to 11 V below the nominal voltage. The factory default setting is 5 V below the nominal voltage.
- High Limit: From 5 V to 11 V above the nominal voltage. The factory default setting is 5 V above the nominal voltage.

ECO FRE Range: Sets the valid frequency range for ECO Mode.

- 50 Hz Systems: 46 Hz to 54 Hz.
- 60 Hz Systems: 56 Hz to 64 Hz.

SETTING → ADVANCE → USER → BATTERY

ACCESS:

BATTERY

10KVA 2022-12-12
Bypass Mode 11:15:17 TUE

ELECTRIC
BATT
OTHERS

HOME

PAGE 1 / 1

10KVA 2022-12-12
Bypass Mode 11:15:17 TUE

BATT WARN VOLT: LOW: 11.5V
SHUTDOWN VOL: 10.7V
BATT AGE: 24
BATT AH: 9

HOME

PARAMETERS IN THIS MENU:

BATT Warn VOLT: Battery voltage thresholds that trigger alarms.

- HIGH: High battery-voltage alarm threshold. Available range: 14.0 V to 15.0 V. Factory setting: 14.4 V.
- LOW: Low battery-voltage alarm threshold. Available range: 10.1 V to 14.0 V. This value must be higher than the **SHUTDOWN VOL** setting. Factory setting: 11.4 V.

SHUTDOWN VOL: If the battery voltage drops below the configured value, the UPS shuts down. Available range: 10 V to 12 V. Factory setting: 10.7 V.

BATT AGE: Battery service-life setting. When the batteries reach the configured operating time, an alarm is generated as a replacement reminder. Factory setting: 24 months.

BATT AH: Battery Capacity in Ah.

SETTING → ADVANCE → USER → OTHERS

ACCESS:

OTHERS

10KVA 2022-12-12
Bypass Mode 11:15:17 TUE

ELECTRIC
BATT
OTHERS

HOME

PAGE 1 / 1

10KVA 2022-12-12
Bypass Mode 11:15:17 TUE

AUTORESTART: DISABLE
SHUTDOWN DELAY: 0 MIN
RESTORE DELAY: 0 MIN
NEW PASSWORD: ****

HOME

PARAMETERS IN THIS MENU:

Auto Restart: After the UPS shuts down due to a deep battery discharge, the Auto Restart function allows it to turn on automatically and return to Normal Mode (Online Mode) when utility power is restored. Available options:

- Enable: Enables the Auto Restart function. Factory setting.
- Disable: Disables the Auto Restart function.

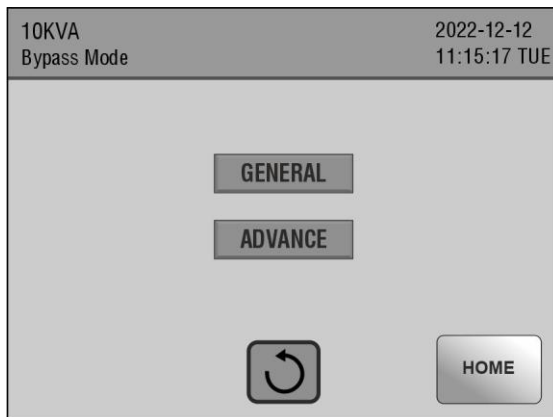
Shutdown Delay: The UPS shuts down after the number of minutes entered in this field. The countdown begins when the command is confirmed.

Restore Delay: After the shutdown initiated by the previous command, the UPS restarts after the number of minutes entered in this field.

New Password: This function changes the password used to access **SETTING → ADVANCE → USER** Menu.

SETTING → ADVANCE → SERVICE

This menu is reserved for special maintenance tasks because configuration errors may damage the UPS. Therefore, access to this menu is restricted.



SCREEN: SETTING → ADVANCE

From this screen, you can access either of the two ADVANCED menu levels, depending on the password entered. The procedure for accessing the **ADVANCE → SERVICE** menu explained below.

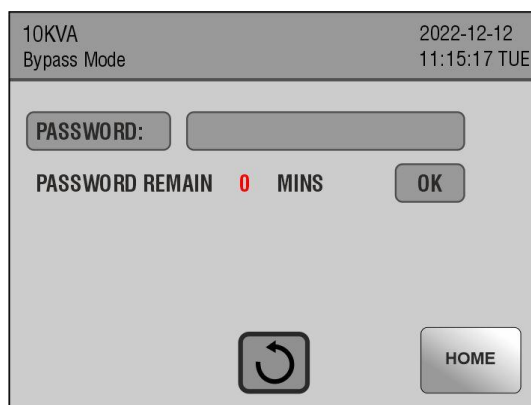
The password for this level is reserved for special maintenance tasks and is not publicly available.

To access the SERVICE menu, please contact the **Xmart** UPS Technical Support Department or visit our website: www.xmart-ups.com.

After entering the correct password, you will have access to the

SETTING → ADVANCE → SERVICE menu.

 Returns to the previous screen



If an incorrect password is entered, the notification message **Password Error!!** will be displayed

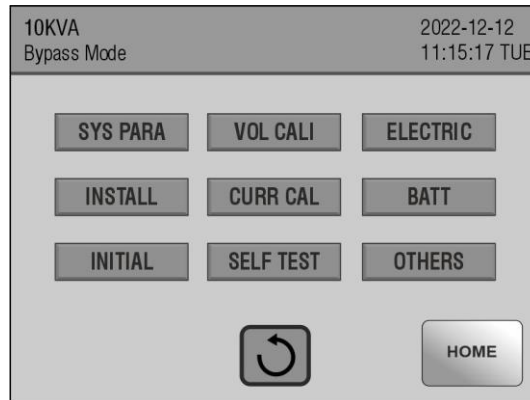
 Returns to the previous screen



SETTING → ADVANCE → SERVICE

The  icon takes you back to the main screen from any other screen. Since this menu contains multiple screens, you can use the  and  arrow icons, where available, to scroll through them. The  icon takes you back to the previous screen.

This menu contains nine submenus, as shown in the following image:



SCREEN: SETTING → ADVANCE → SERVICE – PAGE 1 / 1

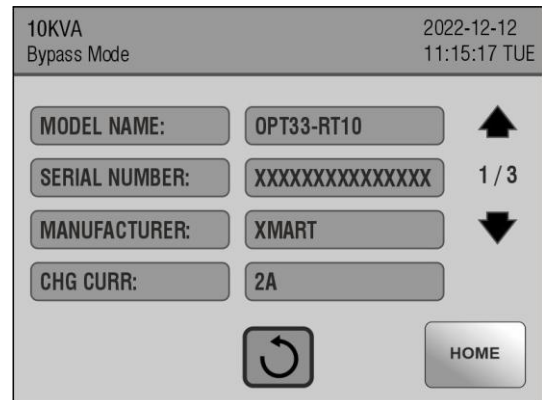
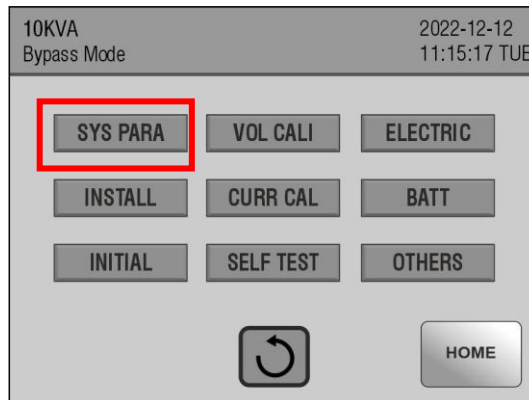
Next, the 9 available sub-menus are explained:

SETTING → ADVANCE → SERVICE → SYS PARAMETERS

ACCESS:

PAGE 1 / 3

**SYS
PARAMETERS**



PARAMETERS IN THIS MENU:

Model Name: UPS model name.

Serial Number: UPS serial number.

Manufacturer: UPS manufacturer.

Max Charge CURR: Maximum battery charging current.

- Options: 1 A, 2 A, 3 A, 4 A, 5 A, 6 A, 7 A, 8 A, 9 A, 10 A, 11 A, 12 A.

10KVA Bypass Mode		2022-12-12 11:15:17 TUE
BATT NUMBER:	20PCS	▲
CHG Volt:	13.6V	2 / 3
UPS TYPE:	LV	▼
POWER SET	100%	
↺		HOME

SCREEN: SETTING → ADVANCE → SERVICE → SYS PARAMETERS – PAGE 2 / 3

PARAMETERS IN THIS MENU:

BATT Number: Number of batteries connected in series either on the positive or negative side of the battery bank.

- 400/230V Model: Range: 16 to 20. Factory setting: 20, except for the 10K model, which uses the same configuration as the 208/120V models described below.
- 208/120V Models: Range: 8 to 10. Factory setting: 10.

NOTE: If this parameter is changed, the UPS must be restarted.

CHG Volt: Battery float-charge voltage setting. Factory setting: 13.6 V.

UPS Type: Two options are available: HV (220 V and similar) and LV (120 V and similar). Changes may only be made by qualified technicians and require the UPS to be restarted.

Power Setting: Output power factor, expressed as a percentage. Factory setting: 100%.

10KVA Bypass Mode		2022-12-12 11:15:17 TUE
OUTPUT SET:	3-3	▲
D PASSWORD	DISABLE	3 / 3
CUSTOMER ID:	XXXXXXXX	▼
↺		HOME

SCREEN: SETTING → ADVANCE → SERVICE → SYS PARAMETERS – PAGE 3 / 3

PARAMETERS IN THIS MENU:

Output setting: Number of input and output phases. Available options: 3-3 (three-phase input and three-phase output) and 3-1 (three-phase input and single-phase output). The 3-1 configuration is not available for the **OPTIMA-33-RT10 20K-208-NB** model. Changing this parameter requires the UPS to be restarted.

NOTE: THIS PROCEDURE IS RESERVED FOR HIGHLY QUALIFIED PERSONNEL. CONFIGURING AN OUTPUT DIFFERENT FROM THE FACTORY SETTING WITHOUT PROPER PREPARATION CAN PERMANENTLY DAMAGE THE UPS. SUCH DAMAGE IS NOT COVERED BY THE WARRANTY.

D Password: Reserved for future use in the dynamic key system. Do not change.

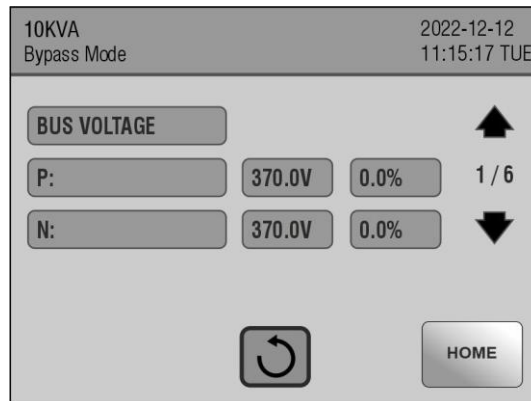
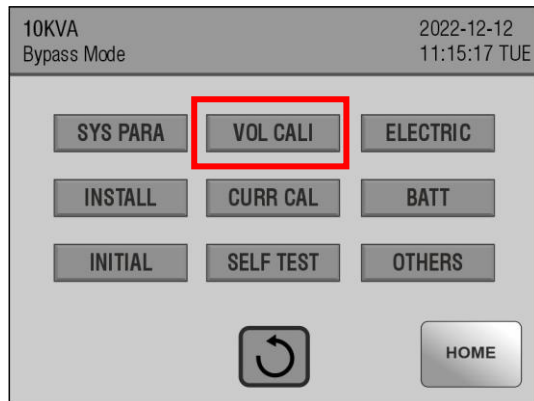
Customer ID: Reserved for future use in the dynamic key system. Do not change.

SETTING → ADVANCE → SERVICE → VOLTAGE CALIBRATION

ACCESS:

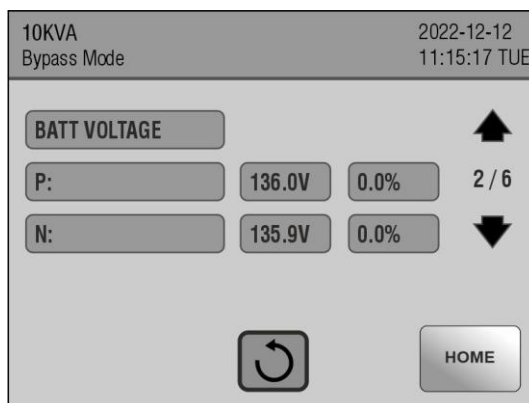
PAGE 1 / 6

VOLT CALI



Bus VOL: Voltage calibration of the two internal UPS bus lines (P and N). Adjustment procedure:

- Tap the percentage value to be adjusted. The adjustment icons will appear, as shown on the right.
- The up arrow increases the value by 0.1%, and the down arrow decreases it by 0.1%.
- When the desired value is reached, tap the “OK” icon to confirm the adjustment.

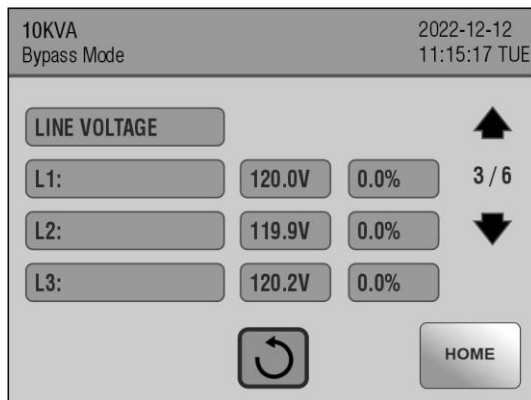


SCREEN: SETTING → ADVANCE → SERVICE → VOLT CALI – PAGE 2 / 6

BATT VOL: Voltage calibration of both battery lines (P and N). Adjustment procedure:

- Tap the percentage value to be adjusted. The adjustment icons will appear, as shown on the right.
- The up arrow increases the value by 0.1%, and the down arrow decreases it by 0.1%.
- When the desired value is reached, tap the “OK” icon to confirm the adjustment.

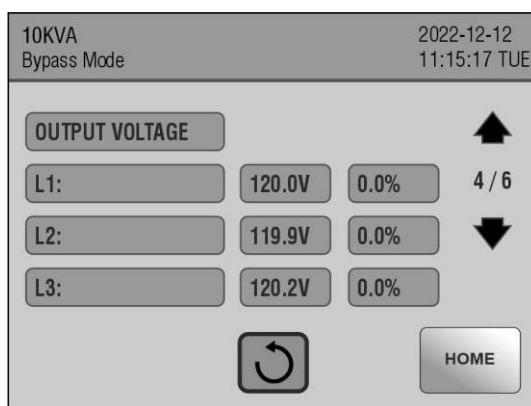




SCREEN: SETTING → ADVANCE → SERVICE → VOLT CALI – PAGE 3 / 6

Line VOL: Voltage calibration of input phases (L1, L2, and L3). Adjustment procedure:

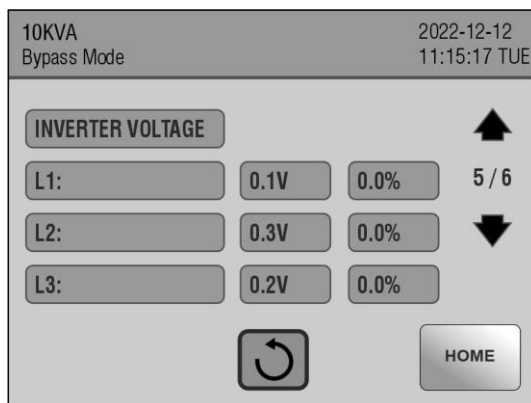
- Tap the percentage value to be adjusted. The adjustment icons will appear, as shown on the right.
- The up arrow increases the value by 0.1%, and the down arrow decreases it by 0.1%.
- When the desired value is reached, tap the “OK” icon to confirm the adjustment.



SCREEN: SETTING → ADVANCE → SERVICE → VOLT CALI – PAGE 4 / 6

Output VOL: Voltage calibration of Output phases (L1, L2, and L3). Adjustment procedure:

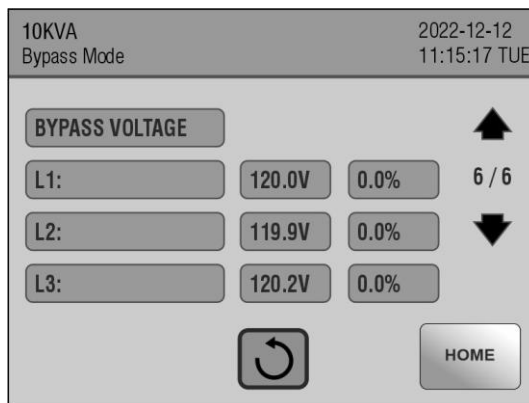
- Tap the percentage value to be adjusted. The adjustment icons will appear, as shown on the right.
- The up arrow increases the value by 0.1%, and the down arrow decreases it by 0.1%.
- When the desired value is reached, tap the “OK” icon to confirm the adjustment.



SCREEN: SETTING → ADVANCE → SERVICE → VOLT CALI – PAGE 3 / 3

Inverter VOL: Voltage calibration of the inverter phases (L1, L2, and L3). Adjustment procedure:

- Tap the percentage value to be adjusted. The adjustment icons will appear, as shown on the right.
- The up arrow increases the value by 0.1%, and the down arrow decreases it by 0.1%.
- When the desired value is reached, tap the “OK” icon to confirm the adjustment.



SCREEN: SETTING → ADVANCE → SERVICE → VOLT CALI – PAGE 6 / 6

Bypass VOL: Voltage calibration of the bypass input phases (L1, L2, and L3). Adjustment procedure:

- Tap the percentage value to be adjusted. The adjustment icons will appear, as shown on the right.
- The up arrow increases the value by 0.1%, and the down arrow decreases it by 0.1%.
- When the desired value is reached, tap the “OK” icon to confirm the adjustment.

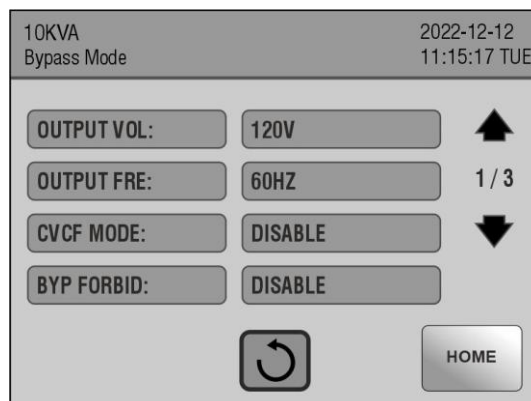
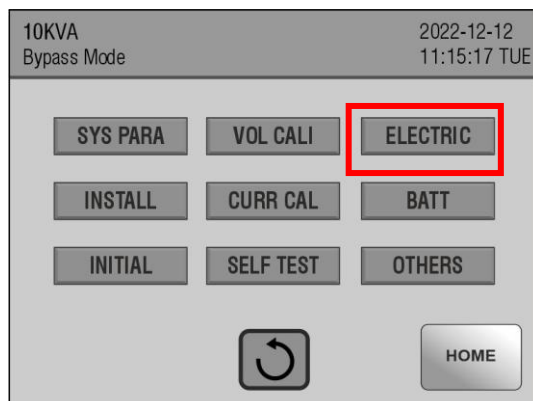


SETTING → ADVANCE → SERVICE → ELECTRIC

ACCESS:

PAGE 1 / 3

ELECTRIC



OUTPUT VOL: Sets the UPS nominal output voltage. Available options:

- 400/230V Models: 208 V, 220 V, 230 V, 240 V.
- 208/120V Models: 120 V, 127 V.

OUTPUT FRE: Sets the UPS nominal output frequency. Available options: 50 Hz and 60 Hz.

CVCF MODE (Frequency Conversion Mode)

- Enable: Enables Frequency Conversion Mode. The output frequency will be set to the value configured in the previous parameter, provided that the input frequency remains between 40 Hz and 70 Hz.
- Disable: Factory default setting. Disables Frequency Conversion Mode. The UPS output frequency will synchronize with the bypass input frequency within the valid range: 45 to 55 Hz for 50 Hz systems and 55 to 65 Hz for 60 Hz systems. These ranges may be 46 to 54 Hz and 56 to 64 Hz, respectively, on some models.

IMPORTANT NOTES ABOUT FREQUENCY CONVERSION FUNCTION:

- If the Frequency Conversion function is enabled to generate an output frequency different from the input frequency, the UPS bypass will be

automatically disabled. However, each time the UPS is powered on, there will be a two-second transient period during which the UPS will operate in Bypass Mode, passing power directly from the input to the output.

- If the UPS trips the input circuit breaker when powered on, it may be configured to operate at a frequency different from that of the system to which it is connected. In this case, follow the procedure below:

Power on the UPS using the COLD START POWER ON PROCEDURE explained in Section 10.

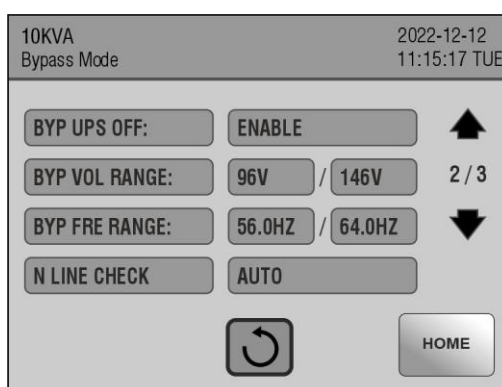
Once the UPS screen is on in Battery Mode, go to **SETTING→ADVANCE→USER→Electric** menu and review the following parameters:

- **CVCF MODE:** If this function is not required, set it to “Disable.” The UPS will then synchronize with the input frequency.
- **OUTPUT FRE:** If CVCF MODE is required, set the OUTPUT FRE parameter to the same value as the input frequency.

Turn off the UPS using the standard procedure and repeat the startup procedure.

BYPASS FORBID: UPS Bypass disabled.

- Enable: Disables bypass operation; bypass cannot be used under any circumstances.
- Disable: Allows bypass operation according to the UPS configuration. This is the factory default setting.



SCREEN: SETTING → ADVANCE → SERVICE → ELECTRONIC – PAGE 2 / 3

Bypass UPS OFF: Determines whether the UPS operates in Bypass Mode when it is turned off. This setting applies only when the “Bypass forbid” parameter is disabled.

- Enable: When the UPS is turned off, it continues supplying power to the output through the bypass line. This is the factory default setting.
- Disable: When the UPS is turned off manually, the bypass is disabled and the output is also turned off.

Bypass Voltage Range: Sets the valid voltage range for Bypass Mode.

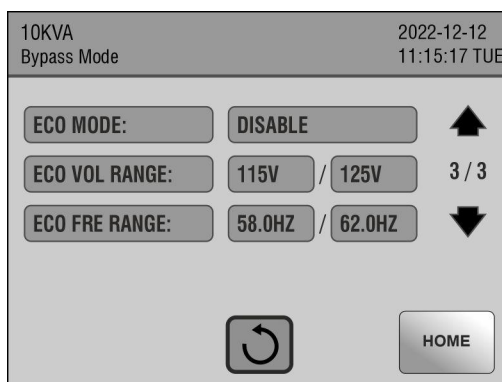
- 400/230V Models: Low Voltage Limit Range: 176 V to 209 V. High voltage Limit Range: 231 V to 264 V.
- 208/120V Models: Low Voltage Limit Range: 96 V to 110 V. High voltage Limit Range: 130 V to 146 V.

Bypass FRE Range: Sets the valid frequency range for Bypass Mode.

- 50Hz Systems: 46 Hz to 54 Hz.
- 60Hz Systems: 56 Hz to 64 Hz.

N LINE CHECK: Configures the Neutral-Loss Detection Function.

- Disable: Disables this function. The UPS will not detect a loss of the neutral connection.
- **Auto:** Enables neutral-loss detection. If a neutral loss is detected, an alarm is generated and, if the UPS is on, it switches to Battery Mode. When the neutral connection is restored, the alarm is cleared and the UPS automatically returns to Normal Mode.
- Check: Enables neutral-loss detection during UPS startup. If a neutral loss is detected, an alarm is generated and, if the UPS is on, it switches to Battery Mode. When the neutral connection is restored, the alarm is not cleared automatically, and the UPS does not automatically return to Normal Mode.



SCREEN: SETTING → ADVANCE → SERVICE → ELECTRONIC – PAGE 3 / 3

ECO mode:

- Enable: Enables ECO Mode.
- Disable: Disables ECO Mode. This is the factory default setting.

ECO VOL Range: Sets the valid voltage range for Bypass ECO Mode.

- Low Limit: From 5 V to 11 V below the nominal voltage. Factory setting: 5 V below the nominal voltage.
- High Limit: From 5 V to 11 V above the nominal voltage. Factory setting: 5 V above the nominal voltage.

ECO FRE Range: Sets the valid frequency range for ECO Mode

- 50 Hz Systems: 46 Hz to 54 Hz.
- 60 Hz Systems: 56 Hz to 64 Hz.

SETTING → ADVANCE → SERVICE → INSTALL INFO

ACCESS:

INSTALL

10KVA Bypass Mode 2022-12-12 11:15:17 TUE

SYS PARA	VOL CALI	ELECTRIC
INSTALL	CURR CAL	BATT
INITIAL	SELF TEST	OTHERS

⏮️ HOME

PAGE 1 / 1

10KVA Bypass Mode 2022-12-12 11:15:17 TUE

SYS INSTALL: 2022 12 10

BATT INSTALL: 2022 12 10

DATE / TIME: 2022-12-12 11:15:17 TUE

⏮️ HOME

PARAMETERS IN THIS MENU:

Sys Install: Enter the UPS installation date.

BATT Install: Enter the battery installation date.

DATE/TIME: Sets the system date and time. The date format is YYYY-MM-DD, and the time format is HH:MM:SS. Setting the date automatically adjusts the day of the week.

SETTING → ADVANCE → SERVICE → CURRENT CALIBRATION

ACCESS:

CURR CALI

10KVA Bypass Mode 2022-12-12 11:15:17 TUE

SYS PARA	VOL CALI	ELECTRIC
INSTALL	CURR CAL	BATT
INITIAL	SELF TEST	OTHERS

⏮️ HOME

PAGE 1 / 1

10KVA Bypass Mode 2022-12-12 11:15:17 TUE

OUTPUT CURR

L1: 0.1A 0.0%

L2: 0.2A 0.0%

L3: 0.1A 0.0%

⏮️ HOME

Output CURR: Current calibration of output phases L1, L2, and L3. Adjustment procedure:

- Tap the percentage value to be adjusted. The adjustment icons will appear, as shown on the right.
- The up arrow increases the value by 0.1%, and the down arrow decreases it by 0.1%.
- When the desired value is reached, tap the "OK" icon to confirm the adjustment.



SETTING → ADVANCE → SERVICE → BATTERY

ACCESS:

PAGE 1 / 2

BATTERY

10KVA Bypass Mode 2022-12-12 11:15:17 TUE

SYS PARA	VOL CALI	ELECTRIC
INSTALL	CURR CAL	BATT
INITIAL	SELF TEST	OTHERS

HOME

10KVA Bypass Mode 2022-12-12 11:15:17 TUE

BATT WARN VOLT: L 11.5V H 12.5V 1 / 2

SHUTDOWN VOL: 10.7V

BATT AGE: 24

BATT AH: 9

HOME

PARAMETERS IN THIS MENU:

BATT Warning Volt: Battery voltage thresholds that trigger alarms.

- HIGH: High battery-voltage alarm threshold. Available range: 14.0 V to 15.0 V. Factory setting: 14.4 V.
- LOW: Low battery-voltage alarm threshold. Available range: 10.1 V to 14.0 V. This parameter must be set higher than the **Shutdown VOL** value. Factory setting: 11.4 V.

Shutdown Volt: If the battery voltage drops below the configured value, the UPS shuts down. Available range: 10.5 V to 12 V. Factory setting: 10.7V.

BATT Age: Battery service-life setting. When the batteries reach the configured operating time, an alarm is generated as a replacement reminder. Factory setting: 24 months.

BATT AH: Battery Capacity in AH.

10KVA Bypass Mode 2022-12-12 11:15:17 TUE

BATT STUDY: DISABLE 2 / 2

BATT INITIAL: NO

BATT GROUPS: 1

BATT CALI: 100

BATT TEMP COMPEN: 0.0mV

HOME

SCREEN: SETTING → ADVANCE → SERVICE → BATTERY – PAGE 2 / 2

PARAMETERS IN THIS MENU:

BATT Study: Intelligent battery-test management function for self-calibration. Options:

- Enable: Allows the UPS to calibrate the batteries' virtual capacity based on the backup time after each charge/discharge cycle.
- Disable: The UPS will not update the backup time after charge/discharge cycles.

BATT Initial: Initializes the UPS's virtual battery capacity. This procedure should be performed after replacing the batteries to clear the calibration performed by the **BATT Study** function. Options:

- Yes: Resets the virtual battery capacity to 100%.
- No: Does not reset the value.

BATT Groups: Number of battery strings connected to the UPS in parallel.

BATT Cali: Backup-time calibration.

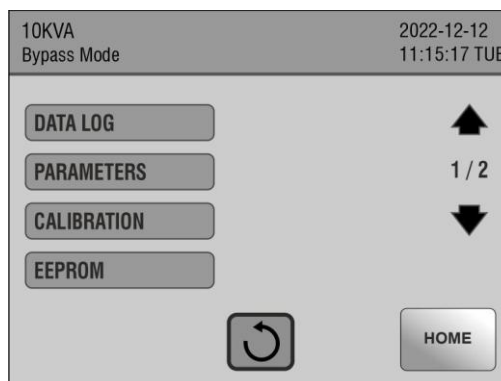
BATT TEMP Compensation: Sets battery charging-voltage compensation, according to temperature.

CONFIGURACION → ADVANCE → SERVICE → INITIAL

ACCESS:

PAGE 1 / 2

INITIAL



Initialization menu. From this menu, many UPS parameters can be reset to their factory default values, and event log data can be deleted.

PARAMETERS IN THIS MENU:

DATA LOG: Deletes the UPS event log.

Confirmation request: *Initial Datalog?*

YES: Deletes the UPS event log.

NO: Cancels the operation and returns to the previous screen.

 Returns to the previous screen



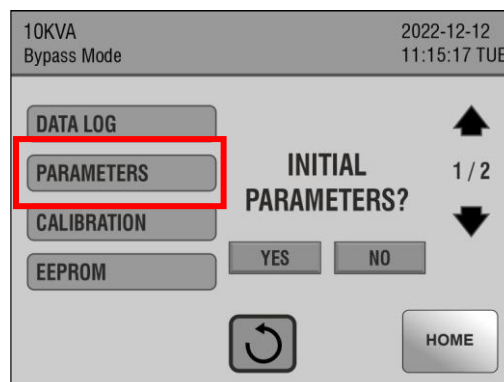
PARAMETERS: Restores all UPS operating parameters to their factory default values.

Confirmation request: *Initial Parameter?*

YES: Restores the UPS operating parameters to their factory default values.

NO: Cancels the operation and returns to the previous screen.

 Returns to the previous screen



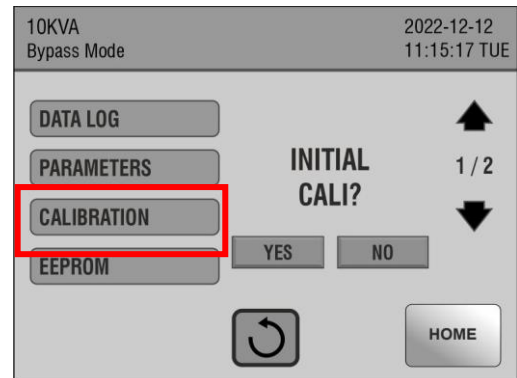
CALI: Restores the UPS calibration parameters to their factory default values.

Confirmation request: **Initial CALI?**

YES: Restores the UPS calibration parameters to their factory default values.

NO: Cancels the operation and returns to the previous screen.

 Returns to the previous screen



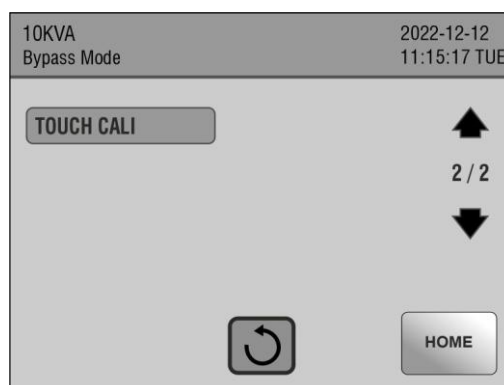
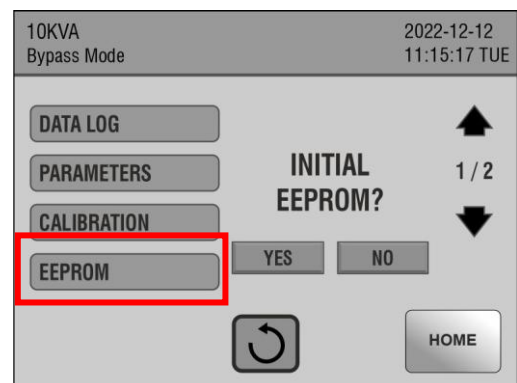
EEPROM: Restores the EEPROM contents to their factory default values.

Confirmation request: **Initial EEPROM?**

YES: Restores initial **EEPROM** content, from factory.

NO: Cancels the operation and returns to the previous screen.

 Returns to the previous screen

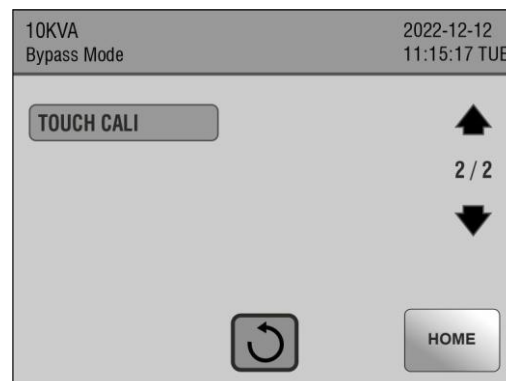


SCREEN: SETTING → ADVANCE → SERVICE → TOUCH CALI – PAGE 2 / 2

TOUCH CALI: Recalibrates the UPS touchscreen.

Tapping the TOUCH CALI button deletes the current touchscreen calibration and starts a new calibration procedure.

 Returns to the previous screen



After calibration is selected, the UPS displays a blank screen, as shown on the right. Touch each white cross as it appears to perform a new touchscreen calibration.

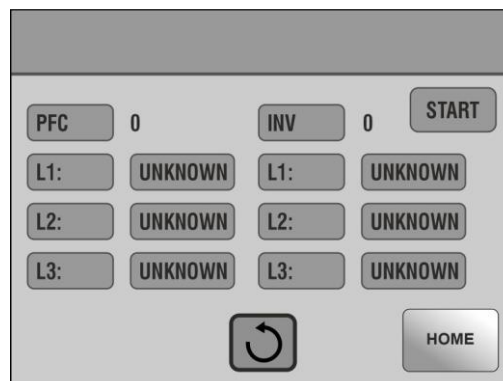


SETTING → ADVANCE → SERVICE → UPS SELF TEST

ACCESS:

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SELF TEST



The UPS self-test function must be performed only by highly qualified personnel.

This function works only when the **UPS TYPE** parameter is configured as HV. If **UPS TYPE** is configured as LV, perform the following procedure before running the UPS self-test:

- Disconnect the UPS from all system loads and power.
- Go to the **SETTING → ADVANCE → SERVICE → SYS PARAMETERS** menu and configure the following parameters:
 - **UPS Type:** Change it to HV, if necessary.

Refer to the information provided in the **SETTING** section for details.
- After confirming that UPS TYPE is set to HV:
 - Restart the UPS.
 - After the UPS restarts, enter the **SETTING → ADVANCE → SERVICE** menu.
 - Select **UPS SELF TEST**. The UPS will display the screen shown above, with all fields indicating “Unknown.”
 - On some models, simply entering the **SETTING → ADVANCED → SERVICE** menu may directly display the **UPS SELF TEST** screen, with all values indicating “Unknown.”
 - Tap the “START” icon to begin the test. If the UPS is operating properly, the fields will change to “Normal”; otherwise, they will remain in the “Unknown” state.
 - At the end of the test, the screen will automatically turn off. If the UPS detects an abnormal condition, information will be displayed on the screen. Any abnormalities must be resolved.

SETTING → ADVANCE → SERVICE → OTHERS

ACCESS:

PAGE 1 / 2

OTHERS



PARAMETERS IN THIS MENU:

Auto Restart: After the UPS shuts down due to a deep battery discharge, the Auto Restart function allows it to turn on automatically and return to Normal Mode (Online Mode) when utility power is restored. Available options:

- Enable: Enables the Auto Restart function. Factory setting.
- Disable: Disables the Auto Restart function.

Shutdown Delay: The UPS shuts down after the number of minutes entered in this field. The countdown starts when the command is confirmed.

Restore Delay: After the shutdown initiated by the previous command, the UPS restarts after the number of minutes entered in this field.



SCREEN: SETTING → ADVANCE → SERVICE → OTHERS – PAGE 2 / 2

PARAMETERS IN THIS MENU:

User Password: Changes the password used to access the **SETTING → ADVANCED → USER** menu.

Advanced Password: Changes the password used to access the **SETTING → ADVANCED → SERVICE** menu.

IMPORTANT NOTE – SAVING PARAMETERS CHANGES

Once the configuration procedure is complete, all changes must be saved.

To save the changes, the UPS must be in either **Bypass Mode** or **Standby Mode**, depending on its configuration, but never in Online Mode, with the batteries connected. Then, disconnect the input power while keeping the batteries connected and wait until the UPS turns off the LCD. After 10 seconds, the batteries can be disconnected, and the unit can be packaged if necessary. If the batteries are disconnected before the LCD turns off or before the 10 seconds have elapsed, the changes will not be saved, and the UPS will revert to its previous settings.

INFORMATION:

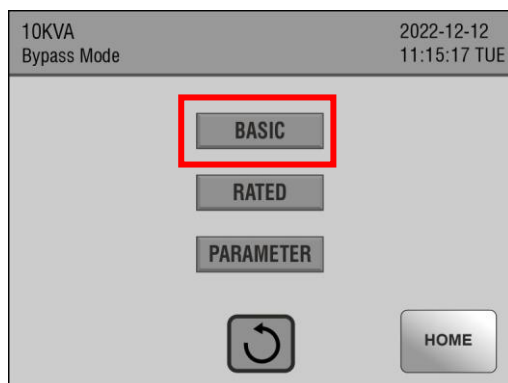
You can access this menu by tapping the  icon. Tapping the  icon takes you back to the main screen from any other screen.

This menu includes two screens. The  and  arrow icons can be used to scroll through them. The  icon takes you back to the previous screen. The available options in this menu are listed below:

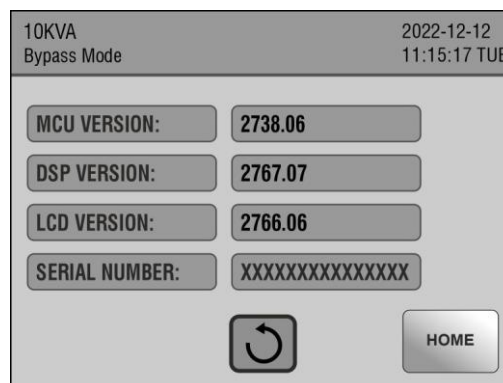
INFO → BASIC

ACCESS:

BASIC



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DESCRIPTION OF LISTED VALUES

MCU Version: MCU firmware Version

DSP Version: DSP firmware Version.

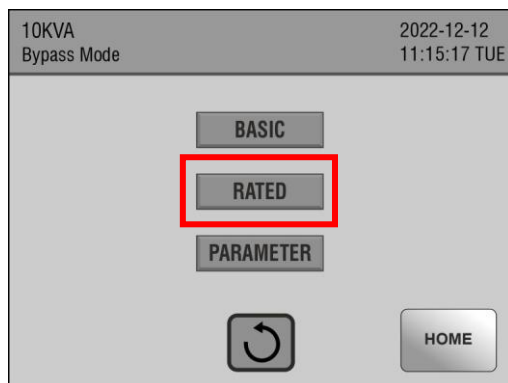
LCD Version: LCD Version.

Serial NO.: UPS serial number.

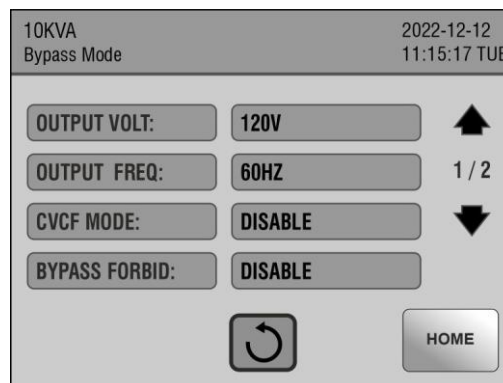
INFO → RATED

ACCESS:

RATED



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DESCRIPTION OF LISTED VALUES

Output VOLT: UPS nominal output voltage.

Output FREQ: UPS nominal output frequency.

CVCF Mode: Frequency Converter Mode status.

Bypass Forbid: Bypass inhibition status.



SCREEN: INFORMACION – RATED – PAGE 2 / 2

DESCRIPTION OF LISTED VALUES

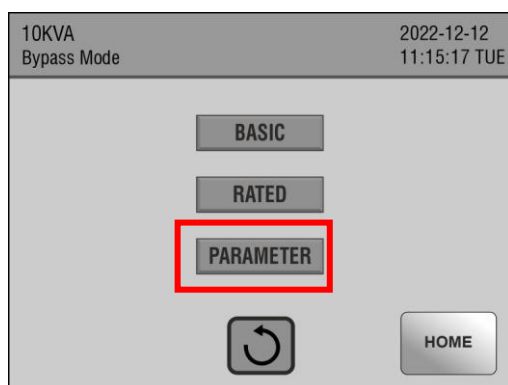
Bypass UPS Off: Status of the bypass function when the UPS is turned off.

Auto Restart: Status of the Auto Restart function.

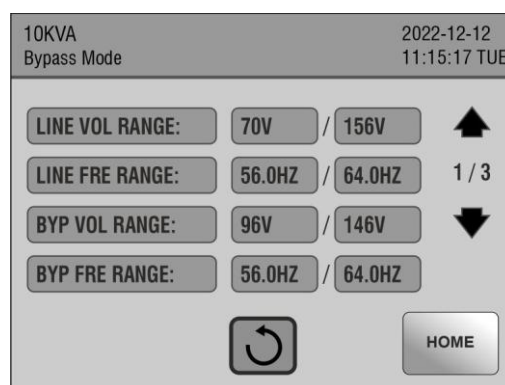
ECO Mode: Status of the ECO Mode function.

INFO → PARAMETER

PARAMETER ACCESS:



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DESCRIPTION OF LISTED VALUES

Line VOL Range: Valid input-voltage range.

Line FRE Range: Valid input-frequency range.

Bypass VOL Range: Valid voltage range for Bypass Mode.

Bypass FRE Range: Valid frequency range for Bypass Mode.



SCREEN: INFORMACION – PARAMETER – PAGE 2 / 3

DESCRIPTION OF LISTED VALUES

ECO VOL Range: Valid voltage range for ECO Mode.

ECO FRE Range: Valid frequency range for ECO Mode.

BATT Work Time: Maximum backup time, in minutes, during Battery Mode, regardless of the battery bank connected to the unit. This function is disabled by default, so the backup time is determined by the battery bank in use. It may only be enabled by highly qualified personnel at an Xmart-authorized service center.

BATT Warning VOL: Battery-voltage thresholds that trigger alarms.

- HIGH: High battery-voltage warning threshold.
- LOW: Low battery-voltage warning threshold.

10KVA		2022-12-12	
Bypass Mode		11:15:17 TUE	
SHUTDOWN VOLT:	10.7V	▲	
SHUTDOWN DELAY:	0MIN	3 / 3	
RESTORE DELAY:	0MIN	▼	
BATT NUMBER:	20PCS		
			

SCREEN: INFORMACION – PARAMETER – PAGE 3 / 3

DESCRIPTION OF LISTED VALUES

Shutdown VOL: Battery-voltage level that causes the UPS to shut down.

Shutdown Delay: Time configured before the UPS shuts down. A value of 0 means that no delayed shutdown has been configured.

Restore Delay: Time configured before the UPS restarts after a scheduled shutdown.

BATT Number: Number of batteries configured for the UPS.

DATA LOG:

You can access this menu by tapping the  icon. Tapping the  icon takes you back to the main screen from any other screen.

As this menu may include more than one screen, the  and  arrow icons can be used to scroll through them. The  icon takes you back to the previous screen. The initial Data Log screen is shown below:

10KVA

Bypass Mode

2022-12-12

11:15:17 TUE

TIME	TYPE	DESCRIBE
22/12/12 11:02:10	Mode	Power On Mode



SCREEN: DATA LOG

This section lists all events logged by the UPS, indicating the date and time of each event, as well as its type and description.

This log can store up to 500 events. Once this limit is reached, each new event overwrites the oldest stored event.

For more information about fault types and warning descriptions, we recommend referring to Section **13.- ERRORS, ALARMS & TROUBLESHOOTING** of this manual.

10.- STARTUP: SINGLE UPS

PRE-STARTUP VERIFICATION

- 1- Make sure all wires are TIGHTLY connected to the terminal blocks. Any loose connection may cause UPS overheating, failures, or damage.
- 2- Make sure all instructions in Sections 5 (Installation) and 6 (Wiring) have been correctly followed. Check that all wiring and circuit breakers are correct.
- 3- Reinstall the terminal block cover to prevent access to the wiring.
- 4- Check that the Emergency Power Off (EPO) port is correctly configured:
 - EPO port closed (wired): EPO function disabled.
 - EPO port connected to an emergency switch: The EPO function is activated through the emergency switch, which must be a "Normally Closed" type so that the UPS shuts down when the circuit opens.
- 5- Check that the External Maintenance Bypass Switch (MBS) is in the NORMAL position and that its protective cover is properly installed.
- 6- Make sure all external protection devices on the input and output lines are in the open (OFF) position.

STARTUP PROCEDURE — SINGLE UPS

1. Make sure all equipment connected to the UPS is turned off.
2. Set ALL battery-bank circuit breakers to ON.
3. Energize the input line at the electrical panel by setting the corresponding circuit breaker to ON.
4. Set the External AC INPUT circuit breaker to ON. The UPS LCD must turn on, the fans should start operating, and the UPS will begin its self-diagnosis.
5. If Bypass Mode is enabled, the LCD will indicate shortly afterward that the UPS has entered Bypass Mode. The UPS outputs will be energized, although the UPS itself will still be off. In Bypass Mode, the output voltage comes directly from the bypass input without UPS regulation.
6. Turn on the UPS as follows:
 - Tap the SETTING icon, tap the CONTROL icon, select the ON/OFF UPS command, and, when the confirmation message "ON UPS?" appears, tap "YES."
7. After a few seconds, the UPS should switch from Bypass Mode to Normal Mode, also known as AC Mode.
8. Turn on each protected device sequentially. The UPS LCD should show the load increasing as each device starts.
9. Once all equipment is on, the total power consumption of the connected load should not exceed the UPS capacity. If the total load exceeds the UPS capacity, the UPS will enter an overload condition and activate the audible alarm. To return to normal operation, disconnect the excess load. We recommend that the total load connected to the UPS not exceed 80% of its capacity.
10. At this point, the UPS is operating in NORMAL AC MODE and supplying power to the system.



IMPORTANT NOTES:

1. If any warning or fault message appears on the screen, or if UPS operation is not as expected, refer to the TROUBLESHOOTING section of this manual.
2. If the UPS trips the input circuit breaker when powered on, it may be configured to operate at a frequency different from that of the system to which it is connected. In this case, follow the procedure below:

Set the External AC Input Breaker to OFF.

Power on the UPS using the COLD START POWER ON PROCEDURE described later in this manual.

When the UPS screen is on and the unit is operating in Battery Mode, go to **SETTING→ADVANCE→USER→Electric** menu and review the following parameters:

- **CVCF MODE:** If this function is not required, set it to "Disable." The UPS will then synchronize with the AC input frequency.
 - **OUTPUT FRE:** If **CVCF MODE** is required, set the **OUTPUT FRE** parameter to the same value as the input frequency.
3. The UPS batteries may not be fully charged when the UPS is installed. During initial use, the UPS will require approximately 10 hours to fully recharge the batteries.

POWER OFF PROCEDURE — SINGLE UPS ONLINE MODE

To power off the UPS:

- Tap the SETTING icon, tap the CONTROL icon, select the ON/OFF UPS command, and, when the confirmation message “OFF UPS?” appears, tap “YES.”

At this point, if permitted by the UPS configuration, the UPS will enter Bypass Mode and supply the output directly from the bypass input. Therefore, the output will remain energized. Always keep this in mind.

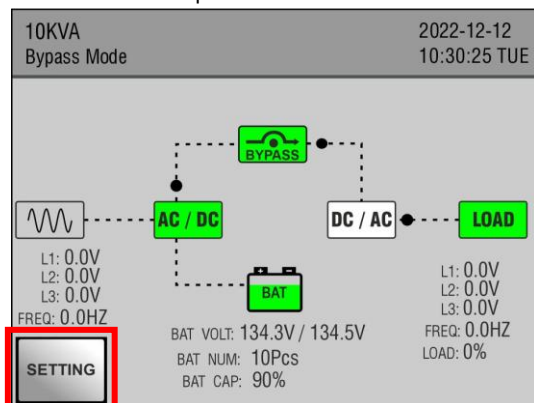
Turn off the External AC Input and Bypass Input circuit breakers to disconnect power from the UPS. A few seconds later, the UPS, its display, and its output should turn off.

COLD START POWER ON PROCEDURE — SINGLE UPS BATTERY MODE

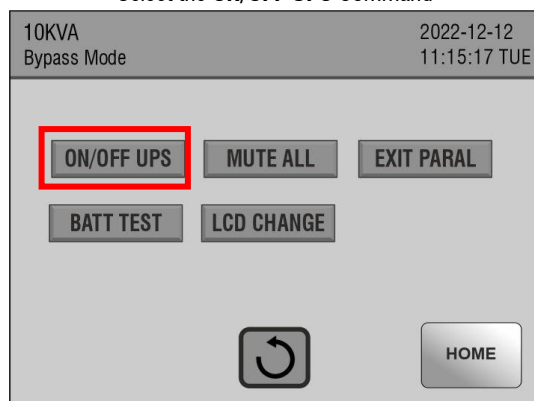
This procedure must be performed with the UPS completely disconnected from AC power. It is recommended to test the UPS before installation and verifying its configuration. For information on using the screens and configuration menus, refer to Section 9.- **UPS OPERATION & CONFIGURATION**. The startup procedure is as follows:

- 1- Make sure the battery bank is properly connected to the UPS and that its switch is turned on.
- 2- Turn on the UPS using the  button on the front panel. The UPS will temporarily turn on; however, if no further action is taken, it will turn off again after approximately 60 seconds.
- 3- To prevent the UPS from turning off, perform the following startup procedure:

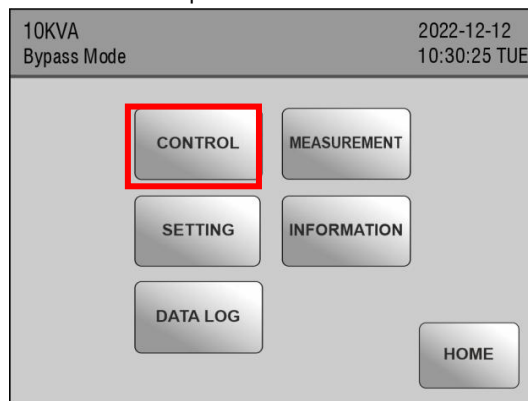
Tap the **SETTING** icon



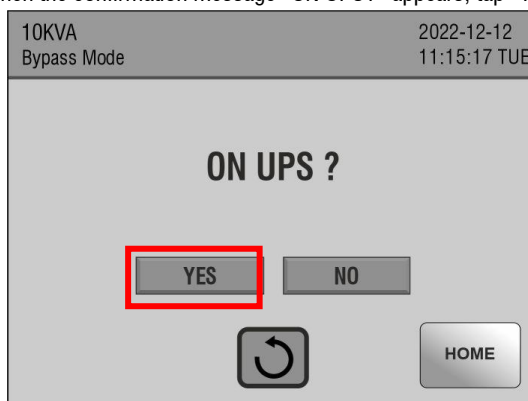
Select the **ON/OFF UPS** Command



Tap the **CONTROL** icon



When the confirmation message “ON UPS?” appears, tap “YES”



- 4- Within a few seconds, the UPS should enter Battery Mode.
- 5- At this point, you can check the UPS settings or power the devices connected to its output.

HANDLING THE UPS IN BATTERY MODE

When the UPS is in Battery Mode, an alarm will sound according to the battery status.

- If the battery capacity is above 25%, the alarm will sound every 4 seconds.

- If the battery voltage falls below the low-voltage alarm threshold, the alarm will sound every second to warn the user that the batteries are in a critical state and that automatic UPS shutdown is imminent. At this point, it is recommended to turn off non-critical equipment to extend the remaining backup time.

In Battery Mode, users can mute the alarm, if appropriate, by tapping the **SETTING** icon, tapping the **GENERAL** icon, and selecting the **Mode Mute** command.

When the batteries discharge to the configured “**Shutdown Volt**” level, the UPS will automatically shut down. Additionally, if the backup time reaches the value configured in the “**BATT Work Time**” parameter, the UPS will also shut down automatically. This function is disabled by default; however, if a value in minutes is configured, the UPS will automatically shut down when that time is reached while operating in Battery Mode.

Battery Test:

To test the batteries, tap the **CONTROL** icon and select the **BATT TEST** command. Refer to the Battery Test screen in Section **9.- UPS OPERATION & CONFIGURATION**.

Battery tests can also be performed and scheduled using monitoring and control software. Refer to the software manual for further details.

POWER-OFF PROCEDURE — SINGLE UPS IN BATTERY MODE

To power off the UPS:

- Tap the **SETTING** icon, tap the **CONTROL** icon, select the **ON/OFF UPS** command, and, when the confirmation message “**OFF UPS?**” appears, tap “**YES**”.

At this point, the UPS will turn off its output.

HANDLING THE UPS IN WARNING MODE

In Warning Mode, the alarm will sound every second, and the alarm code will be displayed intermittently on the screen because an abnormal event has occurred.

The alarm message can be checked in the Data Log. In Section **9.- UPS OPERATION & CONFIGURATION**, under the Data Log subsection, you will find all the necessary information.

In Section **13.- ERRORS, ALARMS & TROUBLESHOOTING**, you will find the alarm codes and possible solutions. Some alarms cannot be muted until the condition that caused them has been resolved, as explained in that section.

HANDLING THE UPS IN FAULT MODE

In Fault Mode, the alarm will sound continuously, and the fault code will be displayed on the screen.

Error messages can be checked in the UPS Data Log. In Section **9.- UPS OPERATION & CONFIGURATION**, under the Data Log subsection, you will find all the necessary information.

In Section **13.- ERRORS, ALARMS & TROUBLESHOOTING**, you will find error codes, possible checks, and solutions.

In an emergency, disconnect power from the UPS by opening the AC Input, Bypass Input, battery, and output circuit breakers to prevent potential damage to the UPS, and contact technical service.

HANDLING THE UPS IN BYPASS MODE — FOR QUALIFIED TECHNICAL PERSONNEL ONLY

When the UPS requires repair or servicing and the load cannot be turned off, place the system in Maintenance Bypass Mode by following this procedure:

- Turn off the UPS.
- Move the external maintenance bypass switch to the “**BYPASS**” position, and then turn off the AC Input, Output, and battery circuit breakers.

The UPS is now ready for servicing.

11.- STARTUP: PARALLEL UPS

INSPECTION BEFORE STARTUP

OUTPUT VOLTAGE CHECK

When multiple UPS units operate in parallel, their outputs are connected, and each UPS supplies a proportional share of the total system power. In this type of system, it is VERY IMPORTANT that the voltages supplied by the inverters of all UPS units are similar. The output voltages must not differ by more than 1.0 VAC. Follow the procedure below to check the output voltage of each UPS:

- 1- Make sure the parallel control cables are not connected between the UPS units.
- 2- Make sure the external output circuit breakers are in the OFF position.
- 3- Start each UPS separately and measure its output voltage **individually** while it is operating in ONLINE Mode.

WARNINGS:

During this process, NEVER operate two UPS units at the same time.

Voltage measurements must be taken using the same high-quality, high-precision digital voltmeter.

Measurements for all UPS units in the parallel system, up to a maximum of four units, must be performed consecutively.

UPS #1 VOLTAGE MEASUREMENT

- Connect the external battery banks to UPS #1. Supply power ONLY to UPS #1, while keeping the other UPS units unpowered.
- Wait for UPS #1 to perform its self-diagnosis, turn on its display, and enter BYPASS Mode. The screen will clearly indicate this status.
- Follow the UPS power-on procedure:
Tap the **SETTING** icon, tap the **CONTROL** icon, select the **ON/OFF UPS** command, and, when the confirmation message “ON UPS?” appears, tap “YES”.
- Wait for the UPS to enter ONLINE Mode. Then, use a digital voltmeter to measure the output voltages and record the results in the table below.
- Follow the UPS power-off procedure:
Tap the **SETTING** icon, tap the **CONTROL** icon, select the **ON/OFF UPS** command, and, when the confirmation message “OFF UPS?” appears, tap “YES”
- Disconnect power from the input of UPS #1 and wait until the LCD turns off.

UPS #2 VOLTAGE MEASUREMENT

Repeat the previous steps for UPS #2 and take note of the output voltages in the table below.

UPS #3 VOLTAGE MEASUREMENT

If UPS #3 is installed, repeat the previous steps for UPS #3 and record its output voltages in the table below.

UPS #4 VOLTAGE MEASUREMENT

If UPS #4 is installed, repeat the previous steps for UPS #3 and record its output voltages in the table below.

	UPS # 1 (VAC)	UPS # 2 (VAC)	UPS # 3 (VAC)	UPS # 4 (VAC)
L1 - N:				
L2 - N:				
L3 - N:				

If the output voltages of all UPS units differ by less than 1.0 VAC, proceed with the startup procedure. Otherwise, adjust the output voltage of the UPS unit that requires correction. First compare the L1-N voltages of all UPS units, then the L2-N voltages, and finally the L3-N voltages.

IMPORTANT NOTES:

- The adjustment procedure must be performed on only one UPS at a time. During the adjustment, do not operate more than one UPS unit simultaneously.
- Perform the adjustment procedure as described in Section 9. UPS OPERATION & CONFIGURATION, under **SETTING → ADVANCE → SERVICE → VOL CALI → INVERTER VOL.**

ESSENTIAL REQUIREMENTS FOR PARALLEL CONNECTION

**WARNING:**

If all requirements listed below are not met, a successful startup of the parallel UPS system cannot be carried out.

1. A maximum of four UPS units may be connected in parallel. Do not connect more than four units.
2. All UPS units must be of the same model and have the same firmware version. Consult your distributor, who can use the UPS serial numbers to confirm that the firmware versions of all units are compatible with parallel operation.
3. All configurable parameters must be set identically on every UPS. If any parameter differs between units, an error or malfunction may occur.
4. The external maintenance bypass switch (MBS) of each UPS must be in the “UPS” position, with its safety cover installed.
5. All UPS units must be connected through their parallel control ports using the parallel control cables and shared current cables, as described in the parallel wiring section of this manual.
6. The combined capacity of all UPS units must be sufficient to supply the total load connected to the parallel system. It is recommended that the total UPS capacity be at least 25% higher than the load to be protected. For continued operation if one UPS fails, the system should be sized so that the remaining UPS units can support the entire load. This configuration is known as N+1 redundancy.

INSPECTION BEFORE STARTUP

Once all UPS output voltages have been confirmed to be properly adjusted, check the following points:

1. Make sure all wires are **TIGHTLY** connected to the terminal blocks. Loose connections may cause overheating, failures, and damage to the UPS.
2. Make sure all installation procedures described in Sections 5 and 7 have been completed correctly. Check that all wiring and circuit breakers are correct.
3. Reinstall the terminal block cover to prevent access to the wiring.
4. Check that the Emergency Power Off (EPO) port is correctly configured:
 - EPO Port closed (Wired): EPO function disabled.
 - EPO port connected to an emergency switch: The EPO function is activated by the emergency switch, which must be a “Normally Closed” type to ensure that the UPS shuts down when the circuit opens.
5. Check that the external maintenance bypass switch (MBS) is in the **NORMAL** position and that its safety cover is properly installed.
6. Make sure all external protection devices on the input and output lines are in the open (OFF) position.
7. Verify that the parallel control cables are properly connected.

STARTUP PROCEDURE. PARALLEL UPS

WARNING: If all the requirements listed below are not met, the parallel UPS system cannot be started successfully.

1. Make sure all equipment connected to the parallel UPS system is turned off.
2. Set all battery bank circuit breakers to ON.
3. Energize the input line at the electrical panel by setting its circuit breaker to ON.
4. Set the external AC input circuit breaker of each UPS to ON. The UPS screens must turn on, the fans should begin operating, and the UPS units will start their self-diagnostic process.
5. If the bypass input is independent from the AC input, set the external bypass input circuit breaker of each UPS to ON.
6. Measure the voltage between the L1 phases of different UPS units in the system. If the wiring is correct, this voltage should be close to 0 Vac. Repeat the measurement for phases L2 and L3.
7. Wait until the screens of all UPS units turn on.
 - ** If Bypass Mode is enabled: After a short time, the screens of all UPS units will indicate that they have entered Bypass Mode. The system output will be powered even though the UPS units have not yet been started. In Bypass Mode, the output voltage comes directly from the bypass input without intervention from the UPS units.
 - ** If Bypass Mode is disabled in the UPS configuration: The UPS units will enter Standby Mode, with their outputs open and unpowered, while waiting to be started.
8. If this has not already been done, verify that all UPS units have identical settings. Check the configuration menu of each UPS and make sure that all configurable parameters are set identically. Refer to the configuration section of this manual.
9. Once it has been confirmed that all configurable parameters are set identically on every UPS, set the external output circuit breaker of each UPS to ON so that their outputs are connected.
10. Follow the UPS power-on procedure:
 - Tap the **SETTING** icon / Tap the **CONTROL** icon / Tap the **ON/OFF UPS** command / When the confirmation message **"ON UPS?"** appears, tap **"YES"**.
11. A few seconds later, all UPS units should synchronize and transfer from Bypass Mode to Normal Mode. The parallel system is now operating correctly.
12. Sequentially turn on each protected device. The UPS screens should indicate the increase in load as each device starts.
13. The parallel system is now operating in Normal AC Mode and supplying power to the connected loads.

IMPORTANT NOTES:

1. If any warning or fault message appears on the screen, or if UPS operation is not as expected, refer to the TROUBLESHOOTING section of this manual.
2. If the UPS trips the input circuit breaker when powered on, it may be configured to operate at a frequency different from that of the AC system to which it is connected. In this case, follow the procedure below:

Set the external AC input circuit breaker to OFF.

Power on the UPS using the COLD START POWER-ON PROCEDURE described in Section 10. **STARTUP: SINGLE UPS.**

When the UPS screen turns on in Battery Mode, go to **SETTING→ADVANCE→USER→Electric** and review the following parameters:

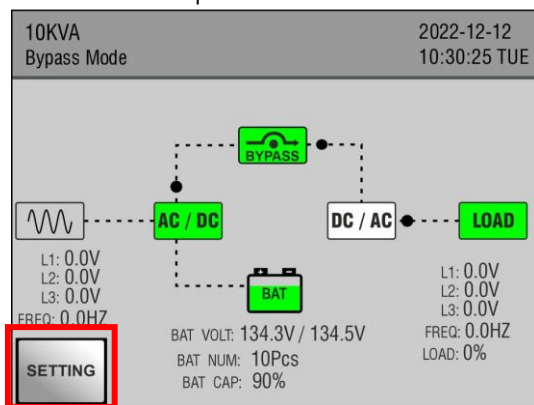
 - **CVCF MODE:** If this function is not required, set it to **"Disable."** The UPS will then synchronize with the AC input frequency.
 - **OUTPUT FRE:** If CVCF Mode is required, set the **OUTPUT FRE** parameter to the same value as the AC input frequency.
3. The UPS batteries may not be fully charged at the time of installation. During initial operation, allow approximately 10 hours for the batteries to become fully charged.

COLD START POWER-ON PROCEDURE – PARALLEL UPS SYSTEM IN BATTERY MODE

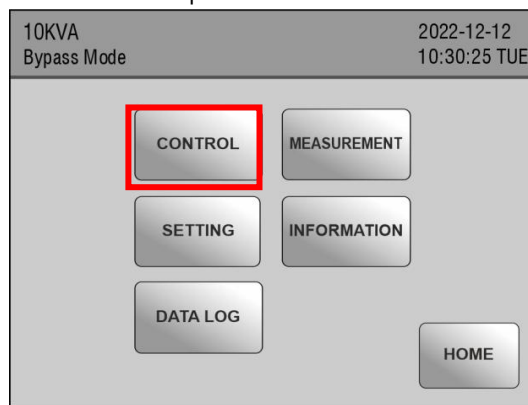
This procedure allows the parallel system to be powered on without AC input power so that it can operate as a power generator. Follow the startup procedure below:

1. Make sure the battery banks are properly connected to the UPS units and that their circuit breakers are set to ON.
2. Set the external output circuit breaker of each UPS to ON.
3. Turn on the first UPS screen using the  button on the front panel. The UPS will turn on temporarily. If no further action is taken, it will turn off again after approximately 60 seconds.
4. To prevent it from turning off, perform the following UPS start-up procedure:

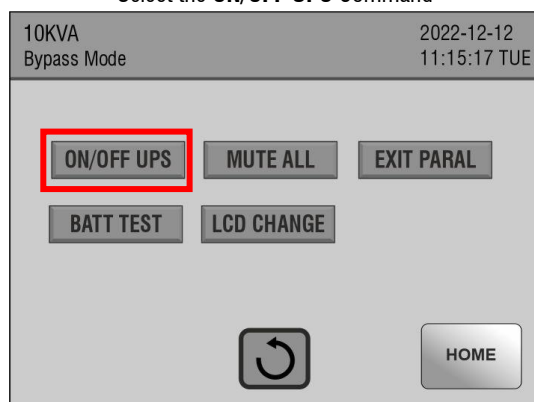
Tap the **SETTING** icon



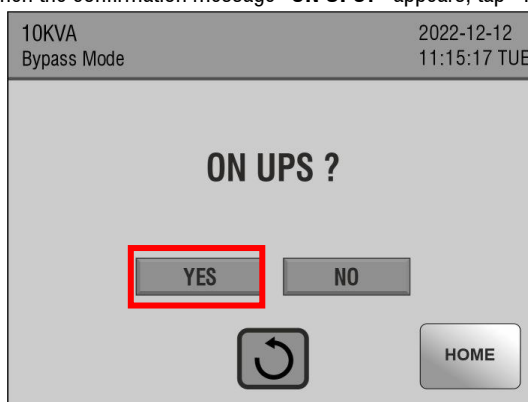
Tap the **CONTROL** icon



Select the **ON/OFF UPS** Command



When the confirmation message **"ON UPS?"** appears, tap **"YES"**



- Touch **SETTING** icon / Touch **CONTROL** icon / Touch **ON/OFF UPS** command / Confirmation Question **"OFF UPS?"**, Touch **"YES"**
UPS Will turn off outputs.

5. Turn on the screen of the second UPS using the  button and repeat the previous procedure within 60 seconds to start the UPS in Battery Mode using the Cold Start procedure.
6. Repeat the Cold Start procedure for each additional UPS in the parallel system.
7. Once all UPS units have been turned on, they will synchronize and activate their outputs simultaneously. The parallel system will then be operational.
8. To turn off the parallel UPS system:
 - Tap the **SETTING** icon / Tap the **CONTROL** icon / Tap the **ON/OFF UPS** command / When the confirmation message **"OFF UPS?"** appears, tap **"YES."**

The UPS units will turn off their outputs.

12.- PARALLEL UPS OPERATION

The operating modes of UPS units connected in parallel are essentially the same as those of a single UPS. However, in a parallel system, all UPS units must operate in the same mode simultaneously. The parallel connection does not allow any UPS to operate in a different mode from the other UPS units in the system.

Removing a UPS from an Operating Parallel System

There are two ways to isolate a UPS from a parallel system:

A) Removing a UPS while keeping the remaining UPS units in Online Mode:

** Check compliance with all the requirements listed below:

Basic Requirements for Servicing a UPS Operating in a Parallel System.

1. This procedure must be performed exclusively by highly trained personnel with full knowledge of the UPS equipment and the electrical installation.
2. The operation must be coordinated with the system administrator, who must be informed of the risk of a potential system shutdown in the event of unexpected circumstances, such as:
 - A power outage during the intervention, if the remaining UPS units cannot provide sufficient backup time to keep the system operational until the serviced UPS is returned to operation.
 - Unexpected activation of a protection device that could cause a complete shutdown or an unexpected failure of the UPS system.
3. A written plan detailing every step of the procedure must be prepared.
4. Once the UPS being serviced is removed, the remaining operational UPS units must have sufficient capacity to supply the required continuous and peak power to the system.
5. Each UPS must have its own external circuit breakers so that it can be disconnected and isolated from the parallel system.
6. There must be sufficient workspace to service the UPS without interfering with the UPS units that will remain operational.

Note: Failure to comply with any of these requirements prohibits servicing an individual UPS and requires the entire system to be shut down for servicing.

If all requirements are met, proceed as follows:

1. Follow the UPS shutdown procedure:
Tap the **SETTING** icon / Tap the **CONTROL** icon / Tap the **ON/OFF UPS** command / When the confirmation message **"OFF UPS?"** appears, tap **"YES"**

NOTE: Once shut down, the UPS output turns off and the UPS enters a standby state with the screen still active. The UPS cannot enter Bypass Mode because its output is connected to the energized outputs of the other UPS units.

2. Set the external output circuit breaker of the UPS being serviced to OFF to electrically isolate its output.
3. Set the external AC input circuit breaker to OFF and wait a few seconds until the screen of the UPS being serviced turns off.
4. Once the UPS is off, set its battery circuit breaker to OFF and disconnect its parallel communication cables and shared current cables.
5. Remove the UPS from the parallel system and restore the parallel communication and shared current cable connections between the remaining UPS units.

NOTE: If any cable connected to the UPS units that will remain operational is disconnected, a communication error will occur and interrupt normal system operation.

At this point, the UPS is turned off and electrically isolated from the parallel system. It can now be serviced individually or removed from the installation.

B) Using the UPS Bypass:

Use this procedure when the bypass function of any UPS is not operating normally. In this case, the entire system must be shut down before the affected UPS can be removed.

1. Verify that Bypass Mode is enabled in the configuration of all UPS units.
2. Turn off all UPS units using the following procedure:
Tap the **SETTING** icon / Tap the **CONTROL** icon / Tap the **ON/OFF UPS** command / When the confirmation message **"OFF UPS?"** appears, tap **"YES"**.
3. Move the external maintenance bypass switch of every UPS from the "UPS" position to the "BYPASS" position.
4. Set the external AC input and battery circuit breakers of all UPS units to OFF. Wait a few seconds until all screens turn off.
5. Set the external output circuit breaker of the UPS to be serviced to OFF to electrically isolate its output. Then disconnect its parallel communication cables and shared current cables. Restore the parallel communication and shared current cable connections between the remaining UPS units.

6. Set the external AC input circuit breakers of the remaining UPS units to ON. The system will transfer to Bypass Mode. Move the external maintenance bypass switch of each UPS from the “BYPASS” position to the “UPS” position and reinstall the safety covers.
7. Turn on all UPS units using the procedure described in the previous section.

Adding a UPS to an Operative Parallel System

- A new UPS cannot be added while the parallel system is operating. The entire system must be shut down before adding a UPS.
- A maximum of four UPS units may be connected in parallel.
- The firmware versions of all UPS units connected in parallel must be compatible.
- All configurable parameters of the UPS being added must exactly match those of the UPS units already installed.
- Follow the procedure described in this manual to install the new UPS in the parallel system.

Static-Bypass Mode During Shutdown Procedure

Although Bypass Mode may be enabled in the configuration of every UPS in the system, if one UPS is shut down using the procedure described in the previous section, UPS will enter Standby Mode with its output turned off. It cannot enter Static Bypass Mode while the other UPS units remain in Online Mode.

Maintenance BYPASS Mode Using MBS Switch

If the safety cover is removed from the maintenance bypass switch (MBS) of any UPS in the system, that UPS will transfer to Bypass Mode and force all other UPS units in the parallel system to transfer to Bypass Mode. To use this operating mode, refer to the **MAINTENANCE BYPASS MODE** section of this manual.

WARNINGS FOR PARALLEL SYSTEMS ONLY:

- Before turning on a parallel UPS system, make sure that the maintenance bypass switches of all UPS units are in the same position.
- While the parallel system is operating, do not operate the maintenance bypass switch of any UPS.
- Do not enable ECO Mode on any UPS in the parallel system. ECO Mode is not compatible with parallel operation.

13.- ERRORS, ALARMS & TROUBLESHOOTING

ERROR / FAILURE CODES ON SCREEN

If a malfunction or failure occurs in the UPS, an error code and description will be displayed on the screen to help identify the issue that requires technical support. Error codes are accompanied by a continuous audible alarm to make the condition easier to detect.

The following table lists the error codes and their corresponding on-screen descriptions for this UPS family:

FAULT CODE	FAILURE DESCRIPTION
01	Bus Start failure
02	High BUS Voltage
03	Low BUS Voltage
04	Bus Unbalanced
06	Converter Over Current
11	Inverter soft start failure
12	Inverter High voltage
13	Inverter Low voltage
14	Inverter L1 output (line to neutral) short-circuit
15	Inverter L2 output (line to neutral) short-circuit
16	Inverter L3 output (line to neutral) short-circuit
17	Inverter L1-L2 output (line to line) short circuit
18	Inverter L2-L3 output (line to line) short circuit
19	Inverter L3-L1 output (line to line) short circuit
1A	Inverter L1 Negative Voltage failure
1B	Inverter L2 Negative Voltage failure
1C	Inverter L3 Negative Voltage failure
21	Battery SCR Short-Circuit
23	Inverter Relay Open-circuited
24	Inverter Relay Short-circuit
25	Line Wiring Fault
31	Parallel communication failure
32	Host signal failure
33	Synchronous signal failure
34	Synchronous trigger signal failure
35	Parallel communication loss
36	Parallel output current unbalance

FAULT CODE	FAILURE DESCRIPTION
41	HIGH Temperature
42	DSP communication failure
43	UPS Overload
46	Incorrect UPS setting
47	MCU communication failure
48	2 DSP firmware incompatible in parallel system
60	Bypass phase short-circuited
61	Bypass SCR short-circuited
62	Bypass SCR open-circuited
63	Voltage waveform abnormal in R phase (L1)
64	Voltage waveform abnormal in S phase (L2)
65	Voltage waveform abnormal in T phase (L3)
66	Inverter current sample abnormal
67	Bypass output short-circuited
68	BYPASS output LINE to LINE short-circuited
69	Inverter SCR short-circuited
6C	BUS voltage drops too fast
6D	Current sampling error value
6E	SPS power error
6F	Battery polarity reverse
71	PFC IGBT overcurrent in R phase (L1)
72	PFC IGBT overcurrent in S phase (L2)
73	PFC IGBT overcurrent in T phase (L3)
74	Inverter IGBT overcurrent in R phase (L1)
75	Inverter IGBT overcurrent in S phase (L2)
76	Inverter IGBT overcurrent in T phase (L3)
78	LCD & MCU communication failure

WARNING CODES ON SCREEN

WARNING CODE	WARNING DESCRIPTION	WARNING CODE	WARNING DESCRIPTION
01	Battery not connected	22	In parallel systems: Bypass situation different
02	Input Neutral loss	33	Locked in bypass after overload 3 times in 30min
04	Input Phase Abnormal	34	Converter current unbalance
05	Bypass phase abnormal	3A	Cover of maintenance switch is open
07	Battery over charge	3C	Utility extremely unbalanced
08	Low battery	3D	Bypass unstable
09	Overload	3E	Battery Voltage too high
0A	Fan failure	3F	Battery voltage unbalanced
0B	EPO enable	40	Charger short circuited
0D	Over temperature	41	Bypass Loss
0E	Charger failure	42	ISO over-temperature
21	In parallel systems: Line situation different	43	BUS soft start error

WARNING:
ALARM CLEARING:

**** Some alarms can lock the UPS, preventing normal operation even after the condition that originally triggered the alarm has been resolved. The technician must confirm that the original condition has been corrected and then clear the alarm by following the procedure described in Section 9, UPS OPERATION & CONFIGURATION, of this manual.**

MEANING OF AUDIBLE ALARMS

Description	Buzzer Status	Can Be Muted
UPS status		
Bypass mode	Beeping once every 2 minutes	Yes
Battery mode	Beeping once every 4 seconds	
Fault mode	Beeping continuously	
Warning		
Overload	Beeping twice every second	No
Others	Beeping once every second	
Fault		
All	Beeping continuously	Yes

TROUBLESHOOTING: SOLVING PROBLEMS

SITUATION	PROBABLE CAUSE	ACTION
The screen no longer displays the input voltage, and the AC input failure alarm is activated (1 beep every 4 seconds), even though the AC power supply is normal.	The UPS AC input cable is not properly connected.	Check UPS AC Input wiring and correct if necessary.
	The UPS AC input cable is connected to the UPS output.	Check UPS AC Input wiring and correct if necessary.
The UPS cannot be turned on even though the AC input is normal. The audible alarm sounds once per second, and code <0B> is displayed on the screen.	The EPO function is active.	Close the EPO port circuit to restore normal UPS operation.
The UPS cannot be turned on even though the AC input is normal.	The incorrect UPS power-on procedure was followed.	Follow UPS Power-on procedure: - Tap CONTROL icon. - Tap UPS ON/OFF command. - On confirmation question " ON UPS? ", tap " YES "
When powering on the UPS, entering Bypass Mode, or attempting to turn it on, the UPS trips the input circuit breaker.	The UPS may be configured to generate a frequency different from that of the AC input line. For example: \n- 50 Hz at a 60 Hz site. \n- 60 Hz at a 50 Hz site.	Power-on UPS in battery mode with  button. After Screen power-on go to SETTING → ADVANCE → USER → Electric Menu and check the following parameters: - CVCF MODE : If not needed, set it to " Disable ". - OUTPUT FRE : If CVCF MODE is enabled, set this parameter to Bypass input frequency. Restart the UPS.
The alarm sounds once per second, and warning code <01> is displayed.	Incorrect battery connection.	Check the battery connection and correct it if necessary.
The alarm sounds once per second, and warning code <02> is displayed.	The input neutral is disconnected, or a fuse in one of the input lines has blown.	Check the neutral connection and correct it if necessary. Check the input-line fuses and replace them if necessary. If the neutral connection and fuses are correct but the warning remains active, go to SETTING → ADVANCE → USER → Electric , set the Neutral Line Check parameter to Check , and restart the UPS.
The alarm sounds once per second, and warning code <0A> is displayed.	A UPS fan is blocked or rotating more slowly than expected, causing the UPS to overheat.	Check the operation of the UPS fans and contact Technical Support.
The alarm sounds twice per second, warning code <09> is displayed, and Bypass Mode is activated.	The UPS is overloaded because the connected load exceeds its capacity. The UPS has entered Bypass Mode to supply the protected equipment directly from the bypass input.	Disconnect loads from the UPS output until the overload condition is cleared.
	After repeated overloads, the UPS is locked in Bypass Mode.	Disconnect loads from the UPS output until the overload condition is cleared. Turn off the UPS and restart it.
The alarm sounds continuously, and fault code <43> is displayed.	UPS automatically turned off due to output overload.	Disconnect loads from the UPS output until the overload condition is cleared and then restart the UPS.
The alarm sounds continuously, and one of the following fault codes is displayed: <14> , <15> , <16> , <17> , <18> , or <19> .	The UPS has automatically shut down due to an output short circuit.	Check the output wiring and the equipment connected to the UPS. Identify and correct the cause of the short circuit.
Any fault code listed in the error table is displayed, and the alarm sounds continuously.	Possible UPS failure.	Contact Technical Support.
The backup time is shorter than expected	The batteries are not fully charged or have deteriorated.	Recharge the batteries for 7 hours. If the problem persists, contact Technical Support.

14.- MAINTENANCE BYPASS MODE

STARTING MAINTENANCE BYPASS MODE (REQUIRES AN EXTERNAL MAINTENANCE SWITCH):

1. If Bypass Mode is enabled in the UPS configuration, turn off the UPS using the procedure described in Section 9, **UPS OPERATION & CONFIGURATION**.
2. When the UPS shuts down, it will transfer to internal Static Bypass Mode. The UPS output will then be supplied directly from the bypass input through the static bypass line. Refer to the internal block diagram in this manual.
3. Once the screen confirms that the UPS has entered internal Bypass Mode, move the external maintenance bypass switch (MBS) from the “UPS” position to the “MBS” position.
4. At this point, the UPS output is supplied directly from the bypass input through the external maintenance bypass switch.
5. Set the external AC input circuit breaker of the UPS to OFF and wait until the screen turns off. The UPS is now disconnected from the AC input line.
6. Set the DC circuit breakers of all external battery packs (XBAT) to OFF. The UPS is now isolated from all power sources.

IMPORTANT WARNING: All procedures and service operations must be performed only by qualified personnel.

RETURNING TO OLINE MODE FROM MAINTENANCE BYPASS MODE:

1. Set the external AC input circuit breaker of the UPS to ON.
2. Energize the UPS as described in Section 9, **UPS OPERATION & CONFIGURATION**.
3. Once the UPS has entered Static Bypass Mode, move the external maintenance bypass switch (MBS) from the “MBS” position to the “UPS” position.

At this point, the UPS remains in Static Bypass Mode and can be started using the procedure described in this manual.

15.- EMERGENCY POWER OFF

This UPS is equipped with a two-terminal EPO (Emergency Power Off) input located on the rear panel. Refer to the PARTS ID, REAR PANEL & TERMINAL BLOCKS section. These terminals are factory-connected with a jumper that keeps the contact closed and prevents activation of the emergency shutdown function.

To connect an emergency stop switch to the UPS EPO port (C2), remove the factory-installed jumper and connect an appropriate normally closed switch. This procedure must be performed while the UPS is turned off. Otherwise, removing the EPO jumper (C2) will cause the UPS to shut down immediately. The emergency stop switch is not included with the UPS and must be purchased separately if required.

When the switch contact opens, the UPS immediately activates the Emergency Power Off function.

- **Immediate result of EPO activation:**
 - The rectifier and inverter stop operating.
 - The UPS internal static bypass switch opens, leaving the UPS output unpowered (Output Off).
- **If the UPS on which the EPO function is activated is part of a parallel system, the emergency shutdown will affect all UPS units in the system and shut down the entire system.**

RESTARTING

To restart a UPS that has been shut down through the EPO port, the UPS must first be completely turned off and disconnected from all power sources.

1. Turn off the UPS from the front panel.
2. Set the external AC input circuit breaker to OFF.
3. Set the external battery circuit breaker to OFF.
4. Wait until the screen turns off.

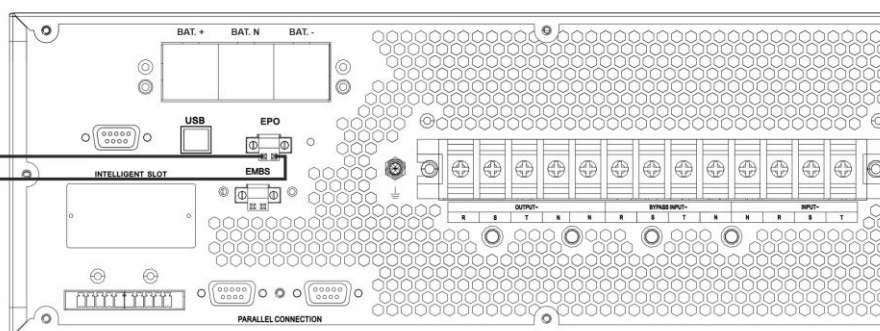
At this point, the UPS can be restarted using the standard power-on procedure described in this manual.

EMERGENCY POWER OFF (EPO) INTERRUPTOR DE PARADA DE EMERGENCIA

**EPO Switch
(Normally Closed)**



**Interruptor EPO
(Normalmente Cerrado)**



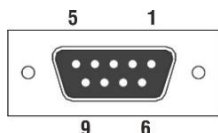
16.- COMMUNICATION OPTIONS

USB PORT:

Used to communicate with a PC running XSMART ViewPower software. The software is available on CD and from our website: www.xmart-ups.com.

RS-232 PORT:

Serial communication port used to communicate with a PC running XSMART ViewPower software. The software is available on CD and from our website: www.xmart-ups.com.



Serial Data Port – Pin out:

Pin 2:	RX – DataReception
Pin 3:	TX – Data Transmission
Pin 5:	GND – Signal Ground

IMPORTANT NOTE:

The serial communication cable used with the RS-232 port must be wired pin-to-pin between pins 2, 3, and 5 at both ends.

SMART PORT:

The Smart Port supports the following optional communication cards:

SNMP – ETHERNET CARD:

Optional card, not included with the UPS, that allows the UPS to communicate over an Ethernet LAN. The card is installed in the Smart Port located on the UPS. Once the UPS is connected to the network, it can communicate with computers on the same network using XSMART communication software or through a web browser by entering the IP address assigned to the card. For more information, refer to the ViewPower PRO software manual and the SNMP network card manual.

AS400 CARD:

Optional dry-contact card, not included with the UPS, that is installed in the Smart Port. This card provides six dry-contact outputs and one dry-contact input. For more information, refer to the AS400 card user manual.

RS485 CARD:

Optional card, not included with the UPS, that is installed in the Smart Port. This card supports communication using the Modbus protocol. For more information, refer to the RS485-Modbus card manual.

Note:

Refer to the **PARTS ID, REAR PANEL & TERMINAL BLOCKS** section for the location of the communication ports and the Smart Port.

17. TECHNICAL SPECIFICATIONS – 400/230V MODELS

OPTIMA-33-RT10 (400/230V) Page 1 of 2		10K-400-NB	15K-400-NB	20K-400-NB
Capacity / Capacidad (VA)		10KVA/10KW	15KVA/15KW	20KVA/20KW
Parallel Units / Unidades en Paralelo		4		
Installation / Instalación		Rack & Tower / Rack y Torre		
Input-Output / Entrada-Salida		3Ph-3Ph (3ph-1ph Configurable)		
INPUT / ENTRADA				
Phase / Fases		(Y) : 3Ph + N + G		
Input Range / Rango de Entrada		L-N: (176Vac-276Vac) @ >=80% Load L-N: (X-276Vac) @ 50% < Load < 80%; X=110 + (220*(Load-50%)) L-N: (110Vac-300Vac) @ <=50% Load		
Max. Current / Corriente Max. (130% load, A x ph.)		25A	37A	50A
Frequency Range / Rango de Frecuencia		Autosensing: 50Hz: (46-54Hz) / 60Hz: (56-64Hz)		
Power Factor / Factor de Potencia		>= 0.99 @ 100%load		
THDi (IEC 62040-3)		< 4% @ 100% load < 6% @ 50% load (IEC61000-3-4)		
Slew Rate / Seguimiento de Frecuencia:		1 Hz / s		
OUTPUT / SALIDA				
Phase / Fases		(Y): 3Ph + N + G or (DELTA): 3Ph +G or (Configurable): 1Ph + N + G		
Voltage / Tensión de Salida		360/208Vac - 380/220Vac - 400/230Vac - 415/240Vac - 230Vac Configurable (*N1)		
Voltage Regulation / Regulación de Salida:		+/- 1%		
Max. Angle Deviation / Max. Desviación de Fase		2° (EN-62040-3)		
Max. Voltage Unbalance Ratio / Desbalance Max.		1% (EN-62040-3)		
Frequency / Frecuencia (Batt. Mode)		50 Hz +/- 0.1 Hz / 60 Hz +/- 0.1 Hz		
Current Crest Ratio / Factor de Cresta		3:1 @ 100% load		
THDv (IEC 62040-3)		<= 2% @ Linear Load / Carga Lineal <= 5% @ No Linear Load / Carga no Lineal		
Dynamic Accuracy / Regulación Carga Variable		6% (load variations 0%-100% & 100%-0% R Load)		
Transient Recovery / Recuperación Cambio Carga		100ms / 90% vs (0%-100% & 100%-0% R load)		
Transfer Time / Tiempo de Transferencia:		0 ms		
Waveform / Forma de Onda		Sine Wave / Sinusoidal Pura		
Power Output / Salidas		Terminal Block / Regleta de Conexión		
DC Offset / Componente DC		+/-50mV max.		
INTERNAL BYPASS				
Bypass type / Tipo de Bypass:		SCR board / Tarjeta SCR		
Input Range in Bypass / Rango entrada en Bypass:		176-264Vac (L-N) & 50/60 +/- 4Hz Freq.		
PROTECTION SYSTEMS / SISTEMAS DE PROTECCION				
Surge & Spikes Suppression / Supresión de Picos		(L-N: 1.490J) + (LG: 1.490J) + (N-G: 490J) = TOTAL=3.470J (10/1000us)		
Output Short-Circuits / Cortocircuitos a la Salida (ONLINE)		Electronic inverter shortcircuit protection / Protección del inversor contra cortocircuitos: <100ms: Current limited to max. capacity / Corriente limitada al 100% de Capacidad >=100ms: Output shutdown. UPS in Fault Mode / Salida se apaga. SAI/UPS en Modo Falla		
AC Input Current / Sobre-Corriente de Entrada AC		Input breaker or fuse / Disyuntor o fusible de entrada		
Battery overcurrent / Sobrecorriente de baterías		Internal Fuse protection in battery line / Protección por fusible interno en línea de baterías		
Phase rotation / Fases de entrada intercambiadas		Alarm & turn-on disable / Alarma y encendido inhabilitado		
Repetitive Overloads / Overloads repetitivos		3 overloads in 30min =UPS locks in bypass / 3 overloads en 30min = UPS a bypass		
Starting Time / Tiempo de Arranque		7s - 10s (@ 100% load)		
EFFICIENCY / EFICIENCIA				
Eco Mode (100%/50% load)		98,5% / 98.0%		
AC Mode / Modo AC (100%/50% load)		94,8% / 95.5%		
Battery / En Batería (100%/50% load)		93.8% / 94.5%		
Inverter Efficiency / Eficiencia Inversor		94.8% inverter @ 100% load		
OVERLOAD / SOBRECARGA				
AC Mode / Modo Normal		[100%-110%: 60m]	[110%-125%: 10m]	[125%-150%: 1m] [>150%: 0.4s] to bypass
Battery Mode / Modo Batería		[100%-110%: 60m]	[110%-125%: 10m]	[125%-150%: 1m] [>150%: 0.4s] to Cut-Off
Bypass		[100%-130%: OK] [>130%: 1min]		

OPTIMA-33-RT10 (400/230V) Page 2 of 2		10K-400-NB	15K-400-NB	20K-400-NB
BATTERIES / BATERIAS				
Battery Type / Tipo de Baterías	VRLA Sealed & Free maintenance / Sellada de libre mantenimiento VRLA (12V-9AH)			
Batteries location / Ubicación de las Baterías	External (XBAT) / Externas (XBAT)			
Battery Voltage / Voltaje de Baterías	+/- 120 Vdc	+/- 240 Vdc		
Charging Amps / Corriente de Carga	1A - 12A Configurable (According to/ De acuerdo con DIN41773)			
Recharging Time / Tiempo de recarga (90%)	According to Battery Array / Según el arreglo de baterías usado (*N2)			
Charging Voltage / Voltaje del cargador (Floating)	+/- 136.5 Vdc	+/- 273 Vdc		
Temp. Compensation / Compensación Temp.	20mV/°C per battery (Input Air Temp/ Temp. Aire entrada: 25-50°C)			
Shutdown battery Voltage / Voltaje DC Apagado	10.7Vdc/batt			
Low Battery Warning / Aviso de Baterías Baja	11.4Vdc per Battery			
Max. DC Current / Corriente DC Max. (150% load)	140A	105A	140A	
INDICATORS / INDICADORES				
3.5 Inches Touch Screen / Pantalla Táctil de 3.5 Pulgadas	Full Status, Error Codes, & Real Time Values Estado, Códigos de Error y Valores en Tiempo Real			
ALARM / ALARMAS				
Acoustic Beep Alarm / Alarma sonora:	Battery Mode, Low Battery, Overload, UPS Failure Modo Batería, Baja Batería, Sobrecargas, Falla			
PRODUCT SIZE & NET WEIGHT / TAMAÑO Y PESO NETO (DxWxH) / (mm) / (Kg)				
SIZE: UPS (no internal batteries)	680*438*133 (3U)			
WEIGHT: UPS (no internal batteries)	26	28	28	
SIZE: Ext. Batt Pack / Baterías Externas	606*438*133 (3U)			
WEIGHT: Ext. batt Pack / Baterías Externas	67			
PACKING: Individual Small Pallet per Unit / EMPAQUE: Equipo en Pallet Individual (DxWxH) / (mm) / (Kg)				
SIZE: UPS	870*580*250			
WEIGHT: UPS	30	32	32	
SIZE: Ext. Batt Cab. / Baterías Externas	870*580*250			
WEIGHT: Ext. batt Cab. / Baterías Ext.	74			
OPERATING / AMBIENTALES				
Operating Conditions / Condiciones de Operación	(0 to +40°C) (*N3) <95 % (non-condensing / no condensante)			
Storage Temperature/ Temperatura de Almacenaje	-15 °C to +60 °C			
Noise Level / Ruido Producido (dB @ 1m)	<62	<65	<65	
Protecting Coating / Tropicalizado de Tarjetas	Yes / Si			
Altitude / Altura	Max Altitude: 4.500m. (over 1.000m output capacity is de-rated 1% every 100m) Altura máx 4.500msnm (sobre 1.000m la capacidad de salida disminuye 1% cada 100m)			
COMMUNICATION / COMUNICACION				
Smart RS-232 & USB ports	Built-In, Supports / De fábrica, soporta: Windows family, Linux, Unix and MAC			
Smart Port (SNMP)	Optional / Opcional: LAN, AS400 & RS485			
SAFETY & STANDARDS / NORMATIVAS Y ESTANDARES				
CE Directives	IEC 62040 - 1			
UPS General Safety / Seguridad General	IEC 62040 - 1			
UPS EMC / Compatibilidad. Electromag.	IEC 62040 - 2 (Class C3)			
UPS Tests / Procedimiento Pruebas UPS	IEC 62040 - 3			
ESD / RS / EFT / Surge / CS / F. Mag. Field	IEC / EN 61000 - 4-2 & 4-3 & 4-4 & 4-5 & 4-6 & 4-8			
Low Frequency Signals	IEC / EN 61000 - 2 - 2			
Degree of protection / Grado de Protección	IP20			
Conduction & Radiation	IEC / EN 62040-2 (Cat 3)			
Quality and Enviroment	RoHS / ISO9001 & ISO14001			
Transportation / Transporte	ETS 300019 - 2 - 2 class 2.3			

Specifications can be modified to comply with special requirements. Technical specifications may change without further notice

Las especificaciones pueden bajo requerimiento adaptarse a proyectos especiales y pueden cambiar sin previo aviso.

(*N1): Output voltage selectable by Screen. Capacity derrated to 90% for 360/208V / Voltaje de salida configurable desde LCD. Cap. disminuida a 90% para 360/208V

(*N2): Recharging time based on previous 10min to 20min full discharging cycles / Tiempo de recarga basado en ciclos previos de descarga profunda de 10 a 20min.

(*N3): UPS can work up to 40°C but batteries short their life over 25°C / El UPS puede trabajar hasta los 40°C, pero las baterías acortan su vida útil por encima de 25°C

TECHNICAL SPECIFICATIONS – 208/120V MODELS

OPTIMA-33-RT10 (208/120V) Page 1 of 2		5K-208-NB	10K-208-NB	20K-208-NB
Capacity / Capacidad (VA)		5KVA / 5KW	10KVA / 10KW	20KVA / 20KW
Parallel Units / Unidades en Paralelo		4		
Installation / Instalación		Rack & Tower / Rack y Torre		
Input-Output / Entrada-Salida		3Ph-3Ph (3ph-1ph Configurable)		
INPUT / ENTRADA				
Phase / Fases		(Y) : 3Ph + N + G		
Input Range / Rango de Entrada		L-N: (88Vac-146Vac) @ >=80% Load L-N: (X-146Vac) @ 50% < Load < 80%; X=70 + (60*(Load-50%)) L-N: (70Vac-156Vac) @ <=50% Load		
Max. Current / Corriente Max. (130% load, A x ph.)		25A	50A	99A
Frequency Range / Rango de Frecuencia		Autosensing: 50Hz: (46-54Hz) / 60Hz: (56-64Hz)		
Power Factor / Factor de Potencia		>= 0.99 @ 100%load		
THDi (IEC 62040-3)		< 4% @ 100% load < 6% @ 50% load (IEC61000-3-4)		
Slew Rate / Seguimiento de Frecuencia:		1 Hz / s		
OUTPUT / SALIDA				
Phase / Fases		(Y): 3Ph + N + G or (DELTA): 3Ph +G (1Ph + N + G, Configurable) (*N)		
Voltage / Tensión de Salida		208/120Vac - 220/127Vac (*N1)		
Voltage Regulation / Regulación de Salida:		+/- 1%		
Max. Angle Deviation / Max. Desviación de Fase		2° (EN-62040-3)		
Max. Voltage Unbalance Ratio / Desbalance Max.		1% (EN-62040-3)		
Frequency / Frecuencia (Batt. Mode)		50 Hz +/- 0.1 Hz / 60 Hz +/- 0.1 Hz		
Current Crest Ratio / Factor de Cresta		3:1 @ 100% load		
THDv (IEC 62040-3)		<= 2% @ Linear Load / Carga Lineal		
Dynamic Accuracy / Regulación Carga Variable		6% (load variations 0%-100% & 100%-0% R Load)		
Transient Recovery / Recuperación Cambio Carga		100ms / 90% vs (0%-100% & 100%-0% R load)		
Transfer Time / Tiempo de Transferencia:		0 ms		
Waveform / Forma de Onda		Sine Wave / Sinusoidal Pura		
Power Output / Salidas		Terminal Block / Regleta de Conexión		
DC Offset / Componente DC		+/-50mV max.		
INTERNAL BYPASS				
Bypass type / Tipo de Bypass:		SCR board / Tarjeta SCR		
Input Range in Bypass / Rango entrada en Bypass:		96-146Vac (L-N) & 50/60 +/- 4Hz Freq.		
PROTECTION SYSTEMS / SISTEMAS DE PROTECCION				
Surge & Spikes Suppression / Supresión de Picos		(L-N: 1.490J) + (LG: 1.490J) + (N-G: 490J) = TOTAL=3.470J (10/1000us)		
Output Short-Circuits / Cortocircuitos a la Salida (ONLINE)		Electronic inverter shortcircuit protection / Protección del inversor contra cortocircuitos: <100ms: Current limited to max. capacity / Corriente limitada al 100% de Capacidad >=100ms: Output shutdown. UPS in Fault Mode / Salida se apaga. SAI/UPS en Modo Falla		
AC Input Current / Sobre-Corriente de Entrada AC		Input breaker or fuse / Disyuntor o fusible de entrada		
Battery overcurrent / Sobrecorriente de baterías		Internal Fuse protection in battery line / Protección por fusible interno en línea de baterías		
Phase rotation / Fases de entrada intercambiadas		Alarm & turn-on disable / Alarma y encendido inhabilitado		
Repetitive Overloads / Overloads repetitivos		3 overloads in 30min =UPS locks in bypass / 3 overloads en 30min = UPS a bypass		
Starting Time / Tiempo de Arranque		7s - 10s (@ 100% load)		
EFFICIENCY / EFICIENCIA				
Eco Mode (100%/50% load)		97% / 96.5%		
AC Mode / Modo AC (100%/50% load)		92.5% / 93.5%		
Battery / En Batería (100%/50% load)		91.5% / 92.5%		
Inverter Efficiency / Eficiencia Inversor		92.5% inverter @ 100% load		
OVERLOAD / SOBRECARGA				
AC Mode / Modo Normal		[100%-110%: 60m]	[110%-125%: 10m]	[125%-150%: 1m] [>150%: 0.4s] to bypass
Battery Mode / Modo Batería		[100%-110%: 60m]	[110%-125%: 10m]	[125%-150%: 1m] [>150%: 0.4s] to Cut-Off
Bypass		[100%-130%: OK] [>130%: 1min]		

OPTIMA-33-RT10 (208/120V) Page 2 of 2		5K-208-NB	10K-208-NB	20K-208-NB
BATTERIES / BATERIAS				
Battery Type / Tipo de Baterías	VRLA Sealed & Free maintenance / Sellada de libre mantenimiento VRLA (12V-9AH)			
Batteries location / Ubicación de las Baterías	External (XBAT) / Externas (XBAT)			
Battery Voltage / Voltaje de Baterías	+/- 120 Vdc			
Charging Amps / Corriente de Carga	1A - 12A Configurable (According to/ De acuerdo con DIN41773)			
Recharging Time / Tiempo de recarga (90%)	According to Battery Array / Según el arreglo de baterías usado (*N2)			
Charging Voltage / Voltaje del cargador (Floating)	+/- 136.5 Vdc			
Temp. Compensation / Compensación Temp.	20mV/°C per battery (Input Air Temp/ Temp. Aire entrada: 25-50°C)			
Shutdown battery Voltage / Voltaje DC Apagado	10.7Vdc/batt			
Low Battery Warning / Aviso de Baterías Baja	11.4Vdc per Battery			
Max. DC Current / Corriente DC Max. (150% load)	70A	140A	280A	
INDICATORS / INDICADORES				
3.5 Inches Touch Screen / Pantalla Táctil de 3.5 Pulgadas	Full Status, Error Codes, & Real Time Values Estado, Códigos de Error y Valores en Tiempo Real			
ALARM / ALARMAS				
Acoustic Beep Alarm / Alarma sonora:	Battery Mode, Low Battery, Overload, UPS Failure Modo Batería, Baja Batería, Sobrecargas, Falla			
PRODUCT SIZE & NET WEIGHT / TAMAÑO Y PESO NETO (DxWxH) / (mm) / (Kg)				
SIZE: UPS (no internal batteries)	680*438*133 (3U)		797*438*176 (4U)	
WEIGHT: UPS (no internal batteries)	26	28	42	
SIZE: Ext. Batt Cab. / Baterías Externas	606*438*133 (3U)			
WEIGHT: Ext. batt Cab. / Baterías Externas	67			
PACKING: Individual Small Pallet per Unit / EMPAQUE: Equipo en Pallet Individual (DxWxH) / (mm) / (Kg)				
SIZE: UPS	870*580*250		980*580*285	
WEIGHT: UPS	30	32	47	
SIZE: Ext. Batt Cab. / Baterías Externas	870*580*250			
WEIGHT: Ext. batt Cab. / Baterías Ext.	74			
OPERATING / AMBIENTALES				
Operating Conditions / Condiciones de Operación	(0 to +40°C) (*N3) <95 % (non-condensing / no condensante)			
Storage Temperature/ Temperatura de Almacenaje	-15 °C to +60 °C			
Noise Level / Ruido Producido (dB @ 1m)	<62	<65	<70	
Protecting Coating / Tropicalizado de Tarjetas	Yes / Si			
Altitude / Altura	Max Altitude: 4.500m. (over 1.000m output capacity is de-rated 1% every 100m) Altura máx 4.500msnm (sobre 1.000m la capacidad de salida disminuye 1% cada 100m)			
COMMUNICATION / COMUNICACION				
Smart RS-232 & USB ports	Built-In, Supports / De fábrica, soporta: Windows family, Linux, Unix and MAC			
Smart Port (SNMP)	Optional / Opcional: LAN, AS400 & RS485			
SAFETY & STANDARDS / NORMATIVAS Y ESTANDARES				
CE Directives	IEC 62040 - 1			
UPS General Safety / Seguridad General	IEC 62040 - 1			
UPS EMC / Compatibilidad. Electromag.	IEC 62040 - 2 (Class C3)			
UPS Tests / Procedimiento Pruebas UPS	IEC 62040 - 3			
ESD / RS / EFT / Surge / CS / F. Mag. Field	IEC / EN 61000 - 4-2 & 4-3 & 4-4 & 4-5 & 4-6 & 4-8			
Low Frequency Signals	IEC / EN 61000 - 2 - 2			
Degree of protection / Grado de Protección	IP20			
Conduction & Radiation	IEC / EN 62040-2 (Cat 3)			
Safety / Seguridad	IEC / EN60950 - 1			
Quality and Enviroment	RoHS / ISO9001 & ISO14001			
Transportation / Transporte	ETS 300019 - 2 - 2 class 2.3			

Specifications can be modified to comply with special requirements. Technical specifications may change without further notice

Las especificaciones pueden bajo requerimiento adaptarse a proyectos especiales y pueden cambiar sin previo aviso.

(*N): Model 20K-208 does not support Single-Phase output configuration / El modelo 20K-208, no admite configuración de salida Monofásica.

(*N1): Output voltage is selectable by Screen / Voltaje de salida configurable desde LCD

(*N2): Recharging time based on previous 10min to 20min full discharging cycles / Tiempo de recarga basado en ciclos previos de descarga profunda de 10 a 20min.

(*N3): UPS can work up to 40°C but batteries short their life over 25°C / El UPS puede trabajar hasta los 40°C, pero las baterías acortan su vida útil por encima de 25°C

18.- SUPPORT & WARRANTY

Support:

If a failure or problem is detected, refer to the troubleshooting section of this user manual. If the problem cannot be resolved, contact an authorized service center or authorized dealer.

Batteries:

Rechargeable batteries can be charged and discharged hundreds of times. However, they will eventually wear out. Battery wear is not considered a defect or failure and is therefore not covered by this warranty.

Battery service life depends on operating conditions, such as temperature and the type and frequency of discharge cycles. The higher the operating temperature, the shorter the battery service life. Frequent deep-discharge cycles will also reduce battery service life. In critical applications, batteries should be inspected and replaced periodically. Prolonged storage without the required recharging will damage the batteries. This condition is not covered by this limited warranty because it is not considered a manufacturing defect. Refer to the battery-recharging instructions in this 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 it is supplied by XMART.

- In Europe, the warranty period is one year for electronic components and one year for batteries, starting from the XMART invoice date.
- In America, standard warranty periods may vary by country or region and may be extended by purchasing additional warranty options. Consult your local distributor for available warranty plans and extensions.

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

3.- This warranty is valid only if the original proof of purchase, specifying the purchase date, serial number, and dealer name, is presented with the product for inspection. XMART and its authorized partners reserve the right to refuse warranty service if any of this information has been removed, altered, or is missing from the original purchase document.

4.- If the product is repaired or replaced, the repaired or replacement product will be covered for the remainder of the original warranty period or for 90 days from the repair date, whichever period is longer.

5.- XMART and its authorized distribution or service partners reserve the right to charge a handling fee if the returned product is found to be operating correctly or is not covered by the warranty for any of the reasons described herein.

6.- If the product is out of warranty, a repair quotation will be submitted to the user for approval. If the quotation is not accepted, the service center will keep the product available for collection for 60 calendar days. After this period, the product may be disposed of, and the user will no longer be entitled to make any claim regarding it.

7.- Rechargeable batteries, such as those used with this product, gradually lose capacity over time and with use, even under normal operating conditions. This is not considered a defect; therefore, loss of battery capacity is not covered by this warranty.

8.- This warranty does not cover partial or total loss of battery capacity caused by prolonged storage exceeding six months without the required recharging. Even when periodically recharged, the product should not be stored for more than 18 months. Battery damage caused by prolonged storage is not covered by this warranty.

9.- This warranty does not cover failures caused by installation, repair, or opening of the product by unauthorized personnel. It also excludes damage caused by improper installation, incorrect operation, negligence, or inadequate maintenance. Damage caused by accidents, fire, or flooding is also excluded.

10.- This product may include protection systems based on input fuses or circuit breakers, which may activate due to improper installation, misuse, or external factors. Such activation is not considered a product failure. Fuse replacement is not covered by this warranty.

11.- This warranty does not cover damage sustained during transportation of the product to the service center for inspection. The service center's responsibility is limited to receiving and handling the product within its facilities.

12.- The terms of this warranty may not be modified or extended by third parties without written approval from XMART.

Limited Warranty

XMART does not guarantee that the operation of this product will be uninterrupted or error-free during its lifetime. If this 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 damage 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 the damage that occurred because of your failure to follow the instructions intended for this hardware product.

ANNEX A

CONNECTIONS FOR UPS UNITS CONFIGURED WITH SINGLE-PHASE OUTPUT

This UPS family can be configured to operate with three-phase input and single-phase output, except for the OPTIMA-33-RT10 20K-208V. Below are the wire gauge tables and connection diagrams for each model.

208/120VAC MODELS – THREE-PHASE INPUT / SINGLE-PHASE OUTPUT

CAPACITY	Max. AC Current x Phase(A)	AC Input L2, & L3		Bypass Line (Note 1) L1			AC Output Line (Note 1) L			Neutral		Battery +, N, & - Lines		Ground	
		AWG	mm	(A)	AWG	mm	(A)	AWG	mm	AWG	mm	AWG	mm	AWG	mm
5KW	20	14	2,5	50	8	10	50	8	10	10	6	8	10	8	10

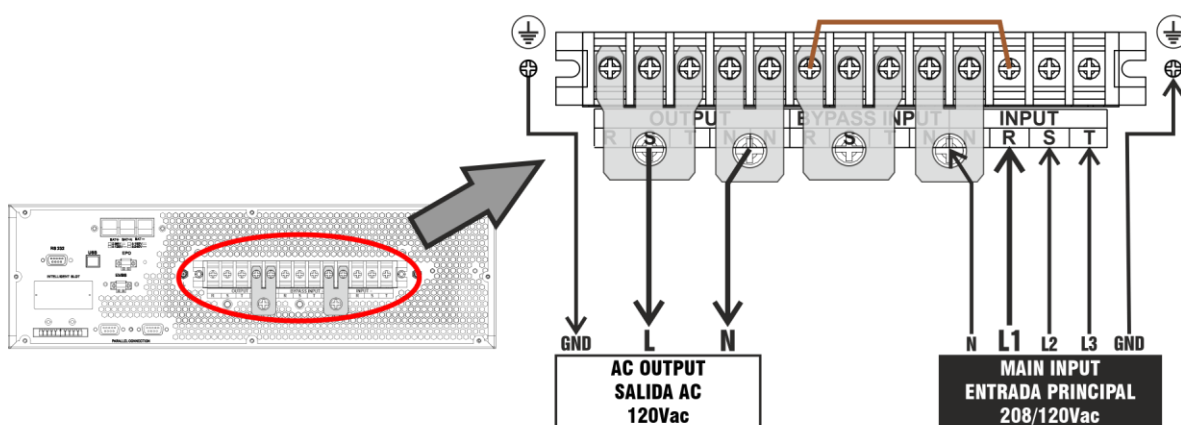


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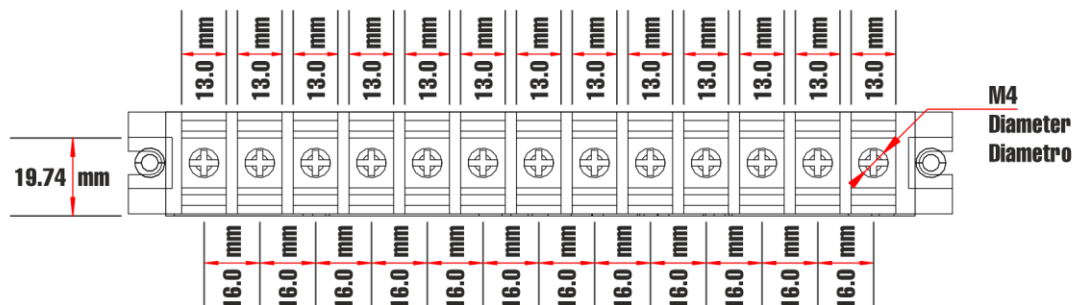
MAKING THIS CONNECTION WITHOUT FIRST CHANGING THE UPS OUTPUT CONFIGURATION TO SINGLE-PHASE WILL PERMANENTLY DAMAGE THE UPS. SUCH DAMAGE IS NOT COVERED BY THE WARRANTY.

OPTIMA-33-RT10 05K - 208V

TERMINAL-BLOCK (REAR PANEL) / REGLETA (PANEL TRASERO)



TERMINAL-BLOCK / BORNERA DE CONEXION



Notes:

- Recommended terminal: Insulated ring type
- Terminal size: According to wire gauge and terminal-block dimensions.

Notas:

- Terminal recomendado: Terminal de anillo (ojal) con aislamiento
- Tamaño del terminal: De acuerdo con el calibre del cable y las medidas de la bornera de conexión.

208/120VAC MODELS – THREE-PHASE INPUT / SINGLE-PHASE OUTPUT

CAPACITY	Max. AC Current x Phase(A)	AC Input L2, & L3		Bypass Line (Note 1) L1			AC Output Line (Note 1) L			Neutral		Battery +, N, & - Lines		Ground	
		AWG	mm	(A)	AWG	mm	(A)	AWG	mm	AWG	mm	AWG	mm	AWG	mm
10KW	40	10	4	100	4	25	90	4	25	6	16	8	10	6	16

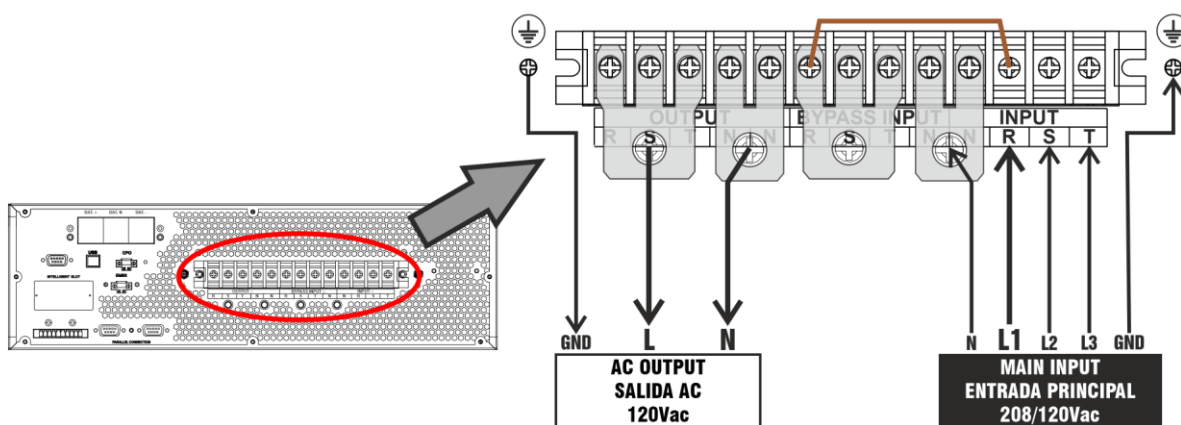


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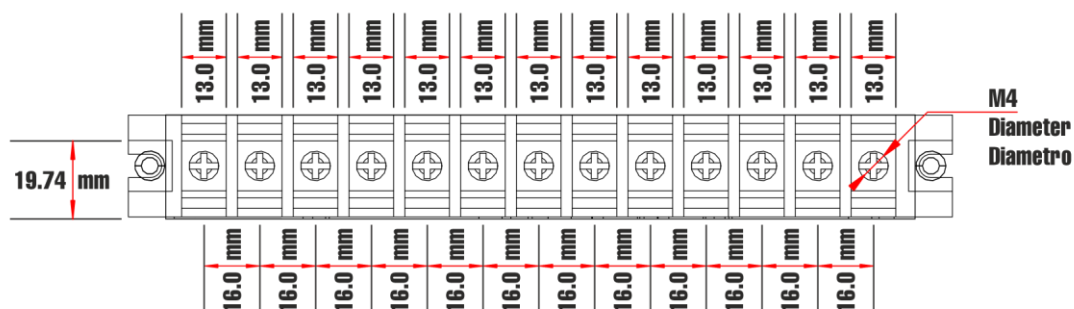
MAKING THIS CONNECTION WITHOUT FIRST CHANGING THE UPS OUTPUT CONFIGURATION TO SINGLE-PHASE WILL PERMANENTLY DAMAGE THE UPS. SUCH DAMAGE IS NOT COVERED BY THE WARRANTY.

OPTIMA-33-RT10 10K - 208V

TERMINAL-BLOCK (REAR PANEL) / REGLETA (PANEL TRASERO)



TERMINAL-BLOCK / BORNERA DE CONEXION



Notes:

- Recommended terminal: Insulated ring type
- Terminal size: According to wire gauge and terminal-block dimensions.

Notas:

- Terminal recomendado: Terminal de anillo (ojal) con aislamiento
- Tamaño del terminal: De acuerdo con el calibre del cable y las medidas de la bornera de conexión.

400/230VAC MODELS – THREE-PHASE INPUT / SINGLE-PHASE OUTPUT

CAPACITY	Max. AC Current x Phase(A)	AC Input		Bypass Line (Note 1)			AC Output Line (Note 1)			Neutral		Battery +, N, & - Lines		Ground	
		L2, & L3		L1			L			AWG	mm	AWG	mm	AWG	mm
		AWG	mm	(A)	AWG	mm	(A)	AWG	mm						
10KW	20	14	2,5	55	8	10	55	8	10	10	6	8	10	8	10

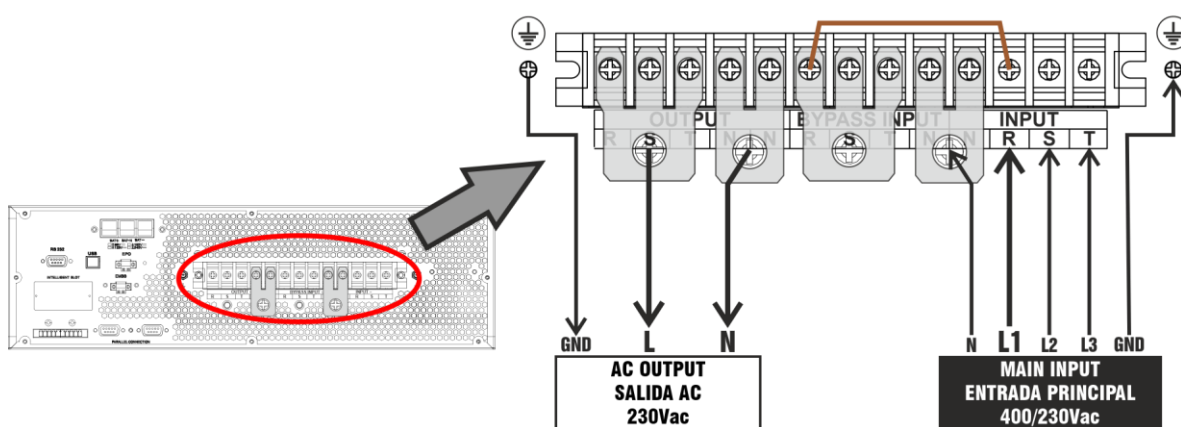


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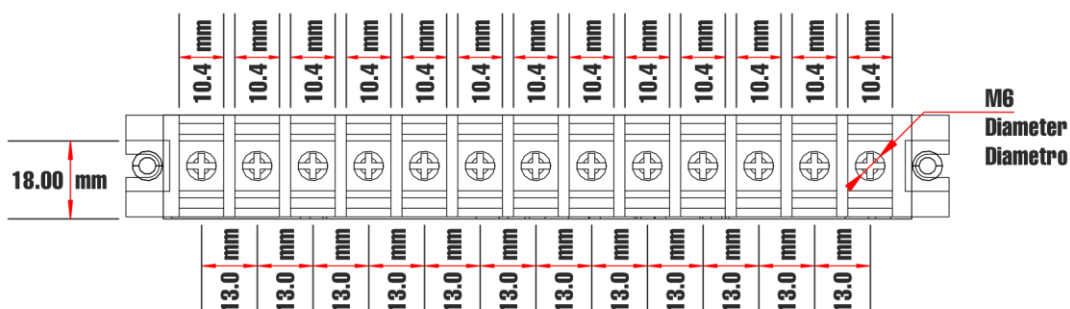
MAKING THIS CONNECTION WITHOUT FIRST CHANGING THE UPS OUTPUT CONFIGURATION TO SINGLE-PHASE WILL PERMANENTLY DAMAGE THE UPS. SUCH DAMAGE IS NOT COVERED BY THE WARRANTY.

OPTIMA-33-RT10 10K - 400V

TERMINAL-BLOCK (REAR PANEL) / REGLETA (PANEL TRASERO)



TERMINAL-BLOCK / BORNERA DE CONEXION



Notes:

- Recommended terminal: Insulated ring type
- Terminal size: According to wire gauge and terminal-block dimensions.

Notas:

- Terminal recomendado: Terminal de anillo (ojal) con aislamiento
- Tamaño del terminal: De acuerdo con el calibre del cable y las medidas de la bornera de conexión.

400/230VAC MODELS – THREE-PHASE INPUT / SINGLE-PHASE OUTPUT

CAPACITY	Max. AC Current x Phase(A)	AC Input L2, & L3		Bypass Line (Note 1) L1			AC Output Line (Note 1) L			Neutral		Battery +, N, & - Lines		Ground	
		AWG	mm	(A)	AWG	mm	(A)	AWG	mm	AWG	mm	AWG	mm	AWG	mm
15KW	30	12	4	82	4	25	82	4	25	10	6	8	10	8	10
20KW	40	10	6	109	3	35	109	3	35	6	16	8	10	6	16



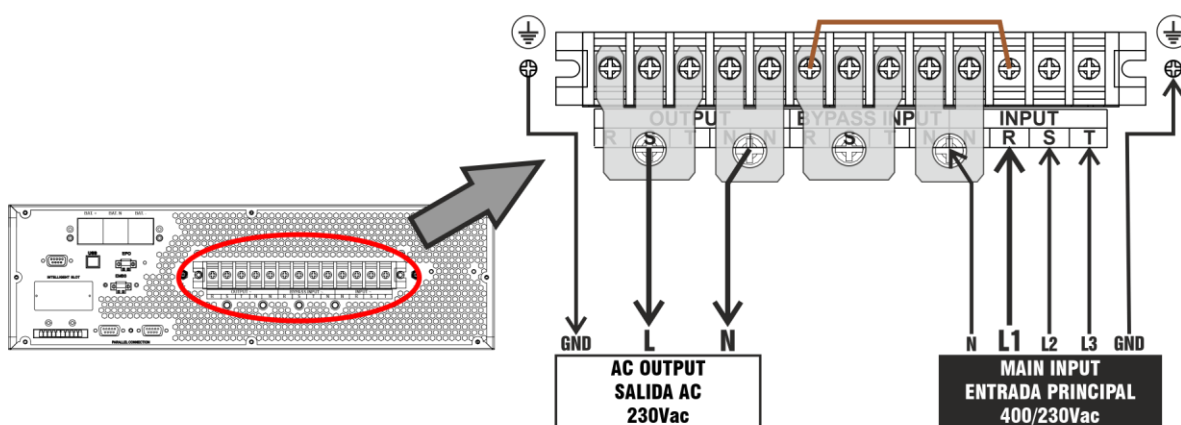
WARNING:

MAKING THIS CONNECTION WITHOUT FIRST CHANGING THE UPS OUTPUT CONFIGURATION TO SINGLE-PHASE WILL PERMANENTLY DAMAGE THE UPS. SUCH DAMAGE IS NOT COVERED BY THE WARRANTY.

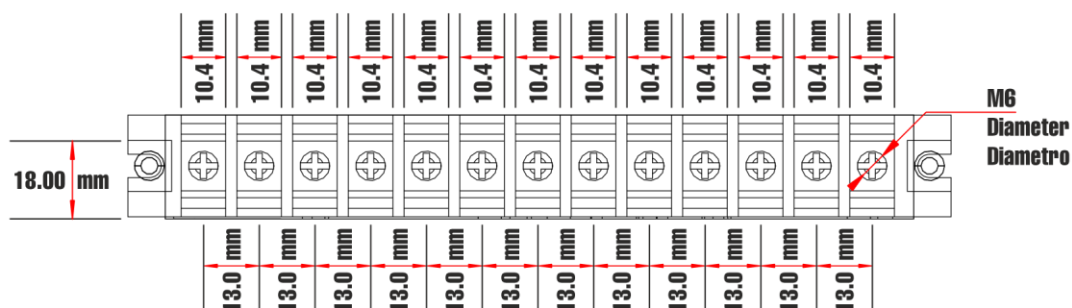
OPTIMA-33-RT10 15K - 400V

OPTIMA-33-RT10 20K - 400V

TERMINAL-BLOCK (REAR PANEL) / REGLETA (PANEL TRASERO)



TERMINAL-BLOCK / BORNERA DE CONEXION



Notes:

- Recommended terminal: Insulated ring type
- Terminal size: According to wire gauge and terminal-block dimensions.

Notas:

- Terminal recomendado: Terminal de anillo (ojal) con aislamiento
- Tamaño del terminal: De acuerdo con el calibre del cable y las medidas de la bornera de conexión.

NOTES

This image shows a full page of blank handwriting practice paper. It features evenly spaced horizontal black lines across the entire width of the page. There are no margins, text, or other markings present.

