ALPHA
OUTBACK
ENERGY


# Tri Power X33 HIMOD HP

## USER MANUAL

## INTRODUCTION

Thank you for choosing our product.
Alpha and Outback Energy is specialised in the design, development and manufacture of Uninterruptible Power Supplies (UPS).

The UPS described in this manual is a high quality product, carefully designed and manufactured to guarantee the best performance.

This manual provides detailed instructions for use and installation of the product.
**For information about using and to get the maximum performance from your UPS, this manual should be carefully kept near the UPS and READ IT BEFORE ANY OPERATION ON IT.**

**NOTE:** Some of the images in this document are provided as a guideline only, and they may not accurately reproduce the depicted product components.

## SAFETY PRECAUTIONS

Read the specific safety manual before any operation on the HIMOD HP UPS System.

## ENVIRONMENTAL PROTECTION

While developing its products, Alpha and Outback Energy spends great efforts in analysing environmental issues. All our products seek the objectives defined by the policies of the environmental management system, developed by the company according to the current legislation.

**No** harmful material such as CFC, HCFC or asbestos can be found in this product.

The packaging is made of RECYCLABLE MATERIAL. Please dispose of the individual elements according to the current legislation in force in the country where the product is to be employed. Please refer to the following table for identifying the materials:

| DESCRIPTION | MATERIAL | |
|---|---|---|
| Pallet | Wood (FOR) | 50 FOR |
| Packaging box | Corrugated cardboard (PAP) | 20 PAP |
| Protective bag | High Density Polyethylene (PE-HD) | 02 PE-HD |
| Adhesive buffers | Low Density Polyethylene (PE-LD) | 04 PE-LD |
| Bubble Cushioning Wrap | | |

## DISPOSAL OF THE PRODUCT

The UPS contains materials, which (in case of decommissioning / disposal) are considered TOXIC and DANGEROUS WASTE, for example circuit boards and batteries. Treat such material according to the current legislation by using licensed centres. Their correct disposal helps to protect the environment and human health.

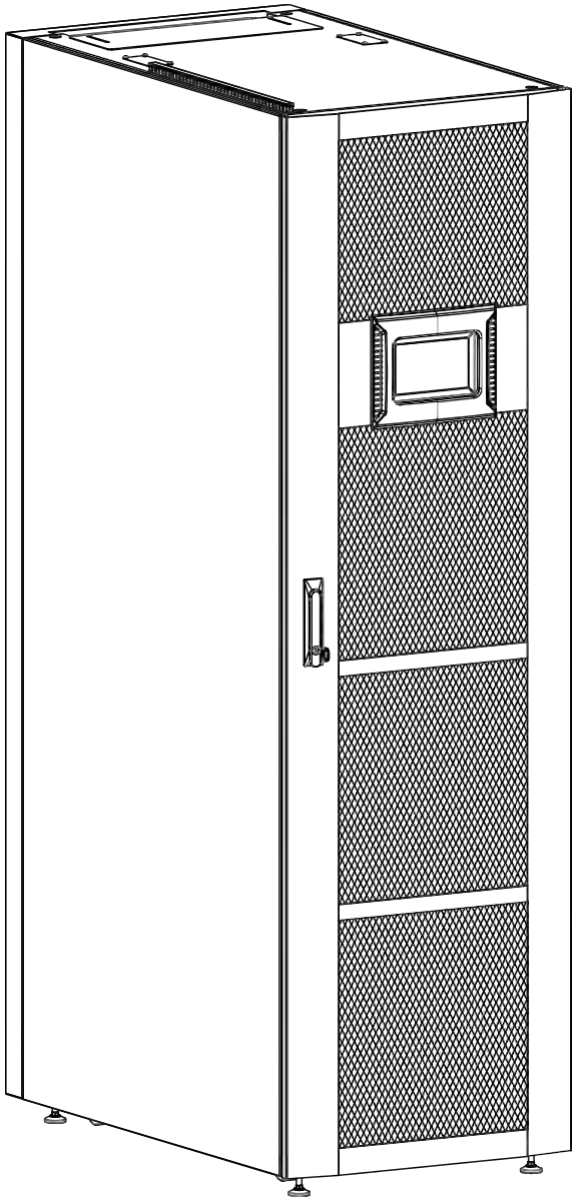
## CONTENTS

## Presentation

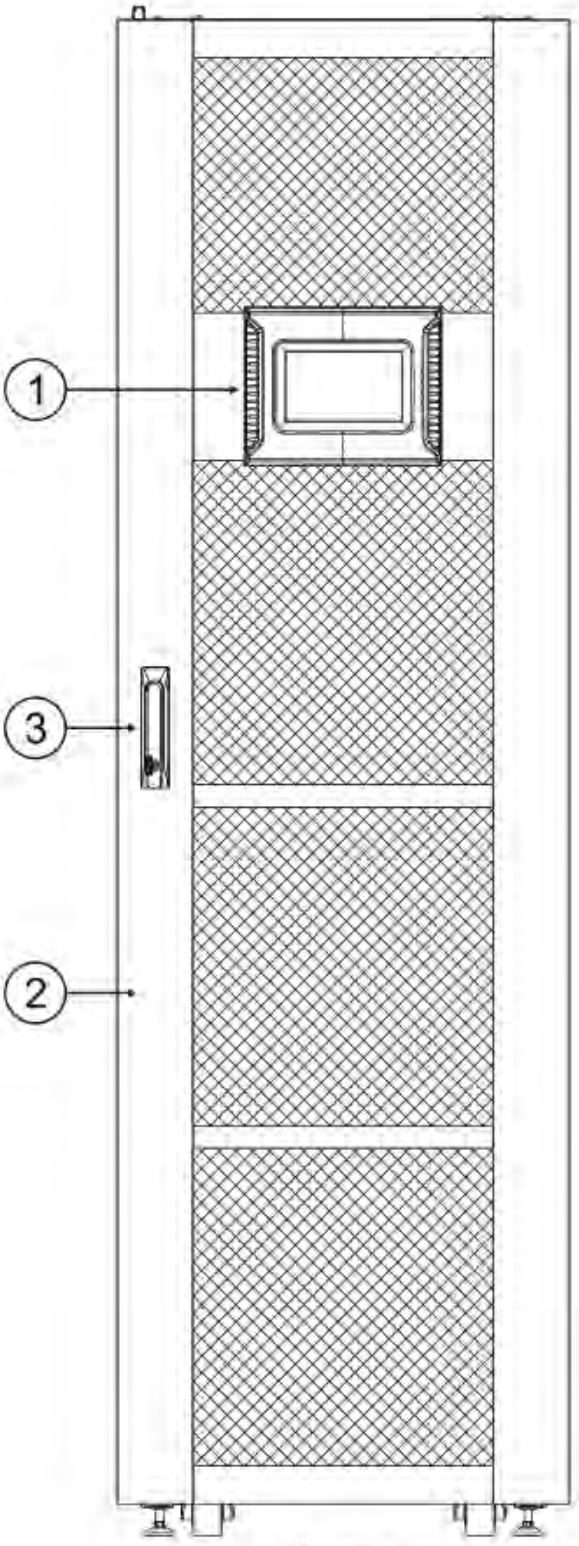
### TRI POWER X33 HIMOD HP 42KW UP TO 1MW

The X33 HIMOD HP modular UPS has been designed using the latest state of the art technology to ensure maximum resilience and performance; additionally, the use of three level Neutral Point Clamped (NPC) inverter and Power Factor Corrected (PFC) input control ensures the highest levels of performance such as:

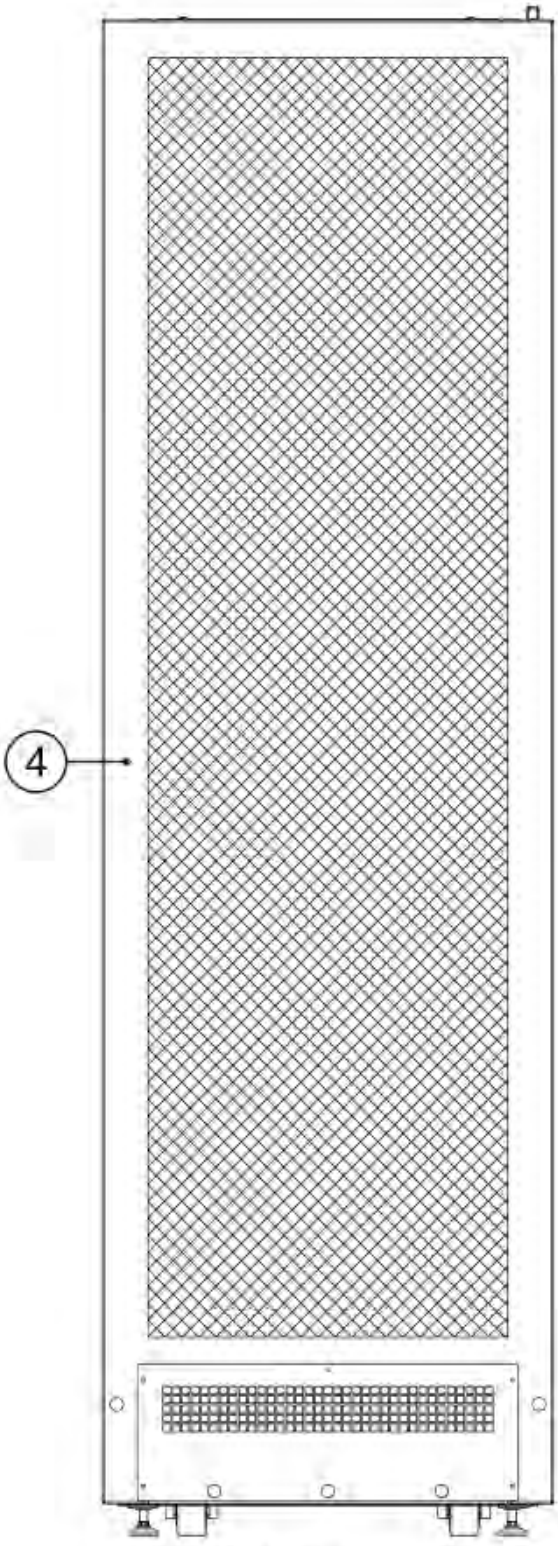
- OUTSTANDING EFFICIENCY; High system efficiency whilst operating in on-line double-conversion mode.
- ULTIMATE SCALABILITY; with 42KVA unity power factor (PF) power modules ensures the highest power density with ultimate scalability.
- UTMOST AVAILABILITY; designed in mind to have a redundant power module in each power rack to give complete confidence in the resilience and the availability of the UPS system.
- EASY CONTROL; using the latest colour touch screen technology the connectivity module gives easily navigable menus using icons to see the full status of the HIMOD HP UPS without having a single point of failure.



## General views

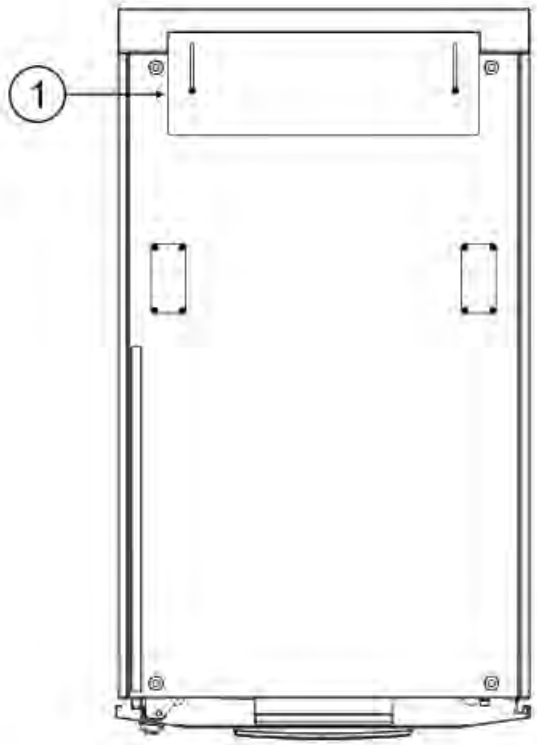


*Front view*

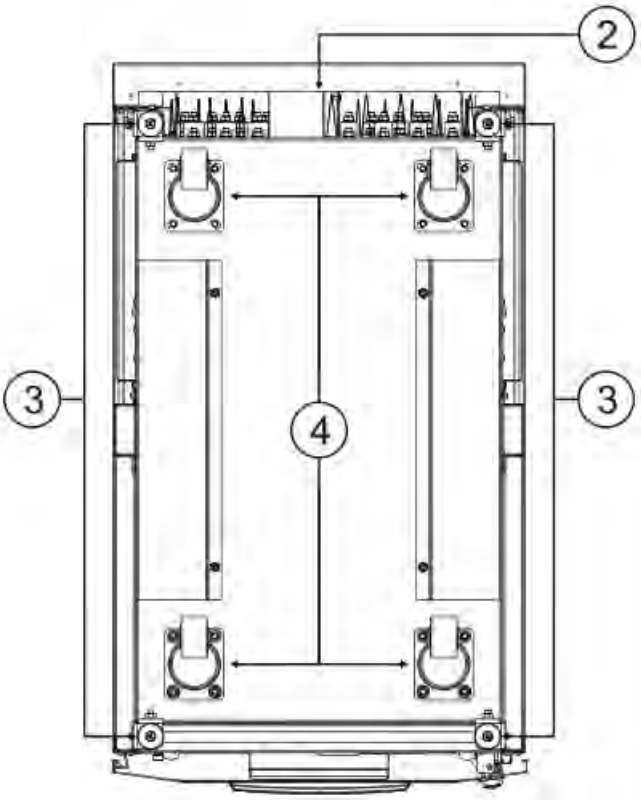


*Back view*

1. Frame
2. Door
3. Handle with lock
4. Back Panel

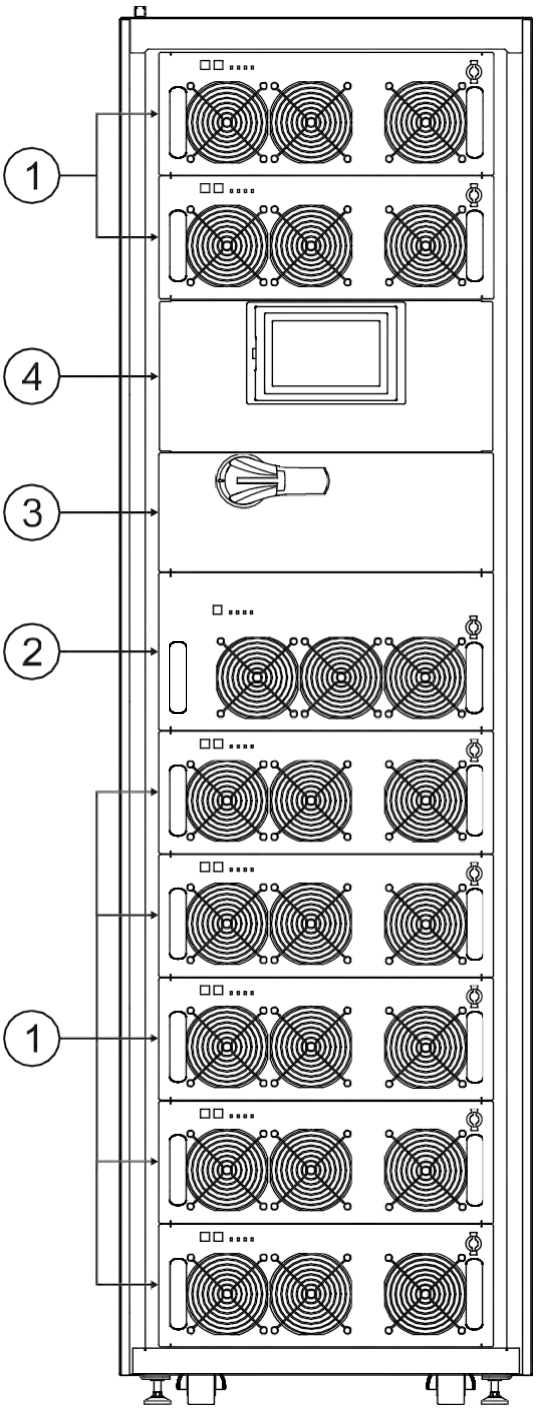



*Top view*

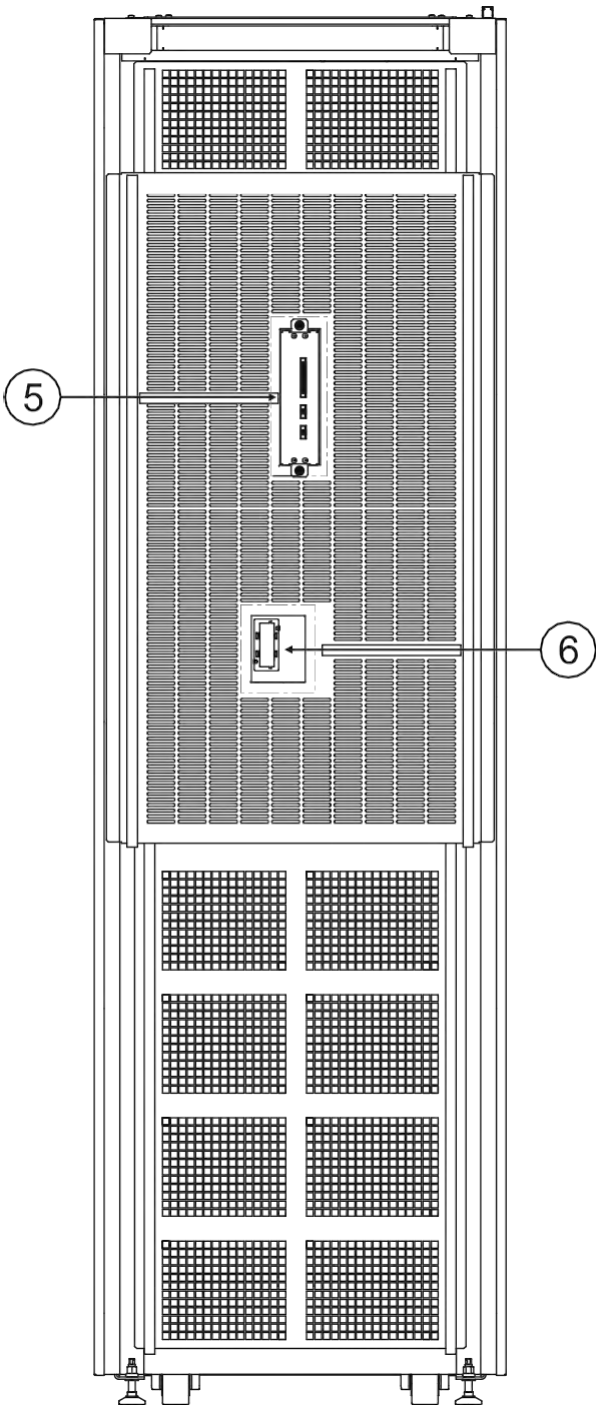



*Bottom view*

1. Top cable entry
2. Bottom cable entry
3. Fastening stands
4. Handling wheels

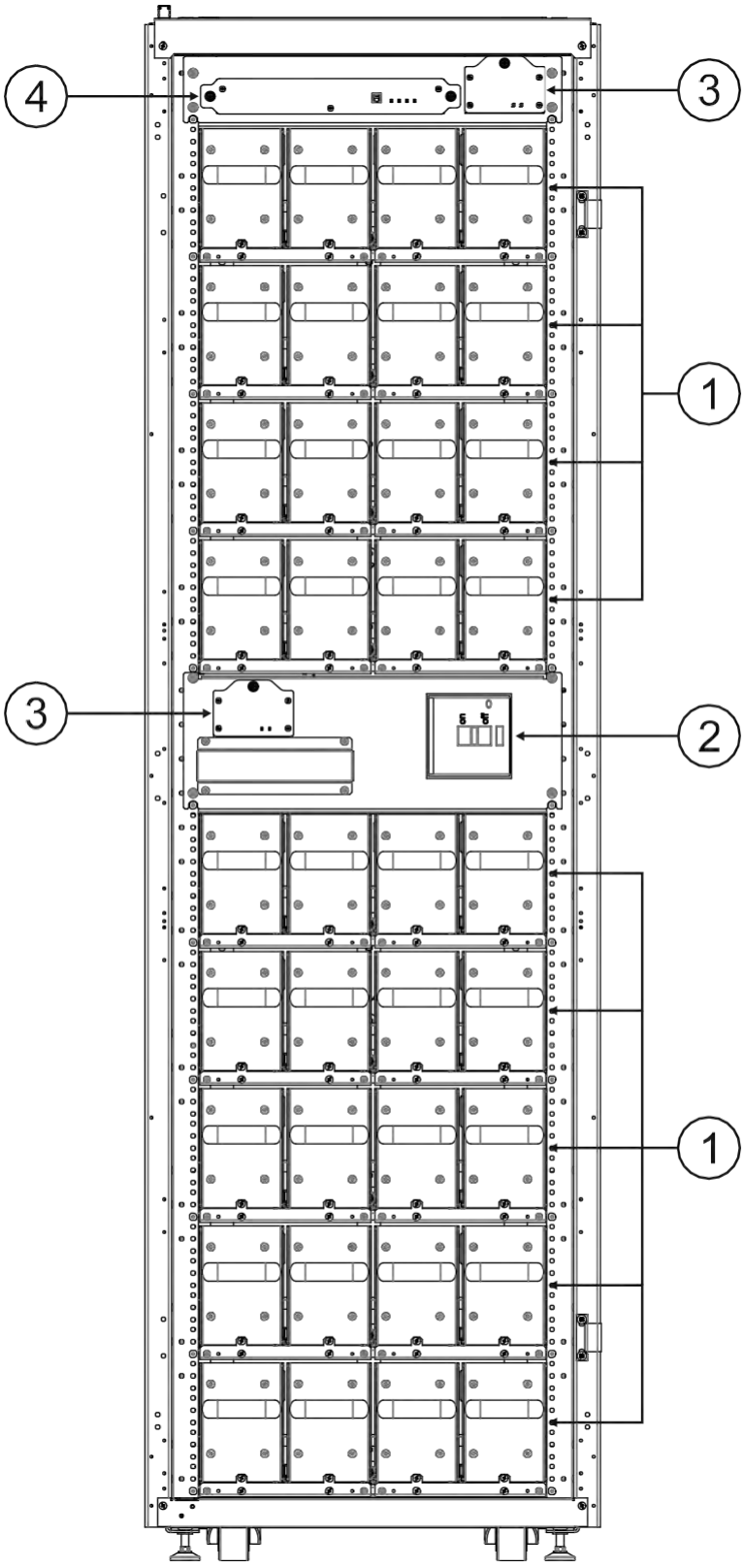



Front view - open door




Back view - without back panel

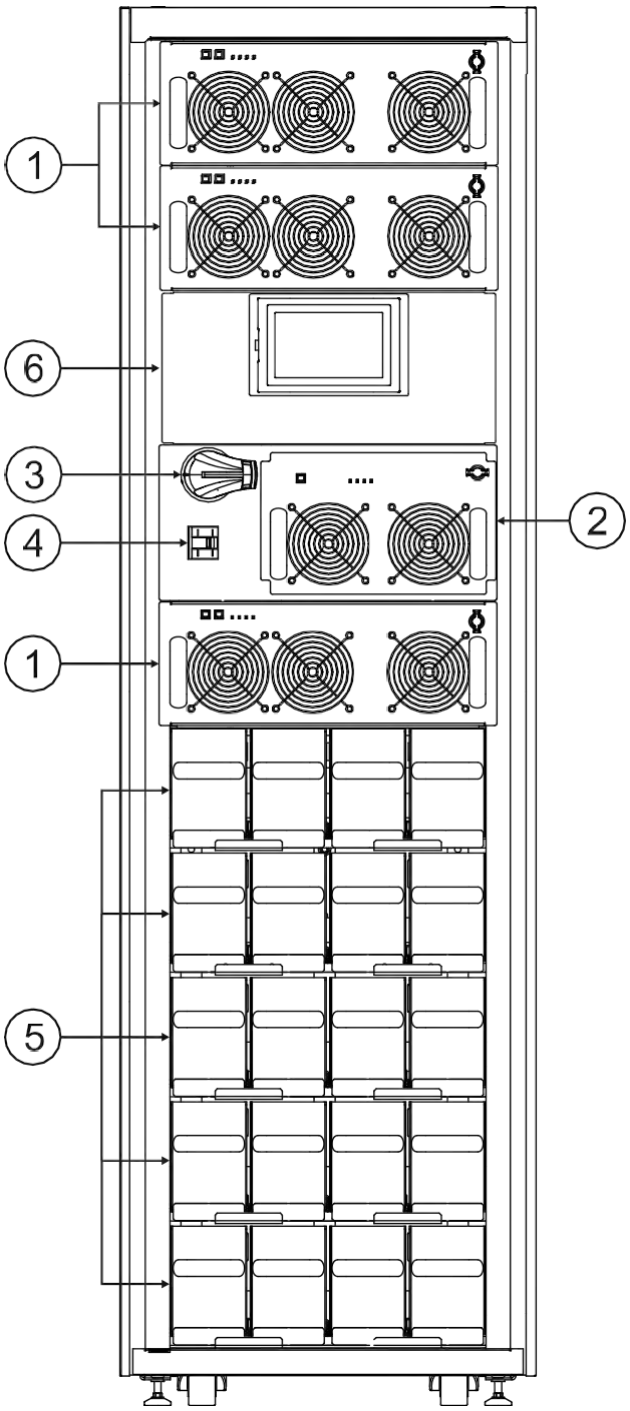
1. Power Module (PM)
2. Bypass Module (BM)
3. Manual Bypass
4. Connectivity Panel (CP)
5. Auxiliary Signal Board (ASB)
6. Relay Slot



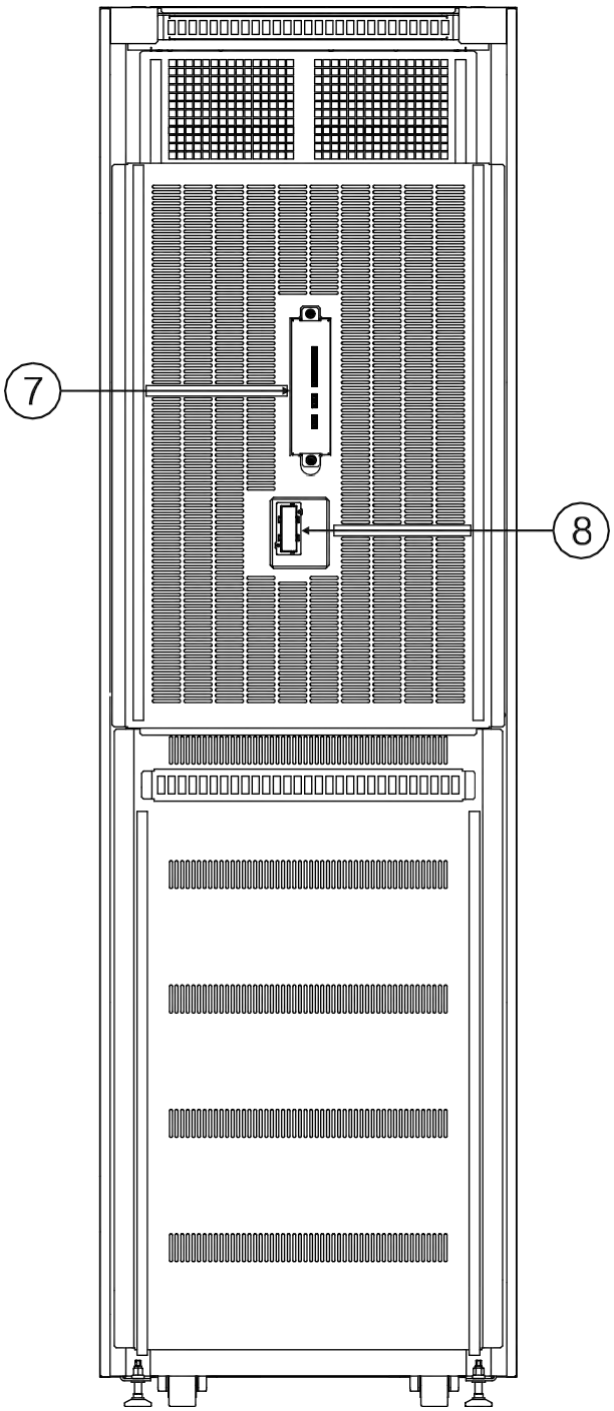

Front view - open door

1. Battery Unit
2. Battery Switch (SWBATT)
3. Power Supply Unit (PSU)
4. Monitoring Unit (MU)

## Modular POWERPLUS cabinet




Front view - open door

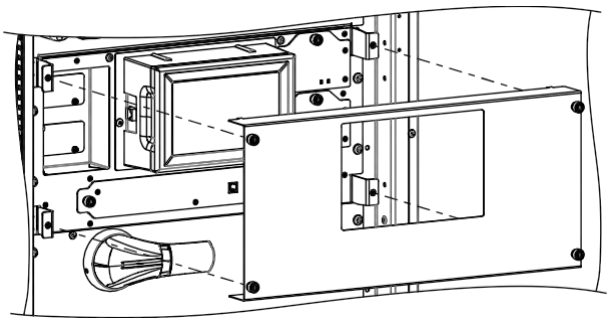


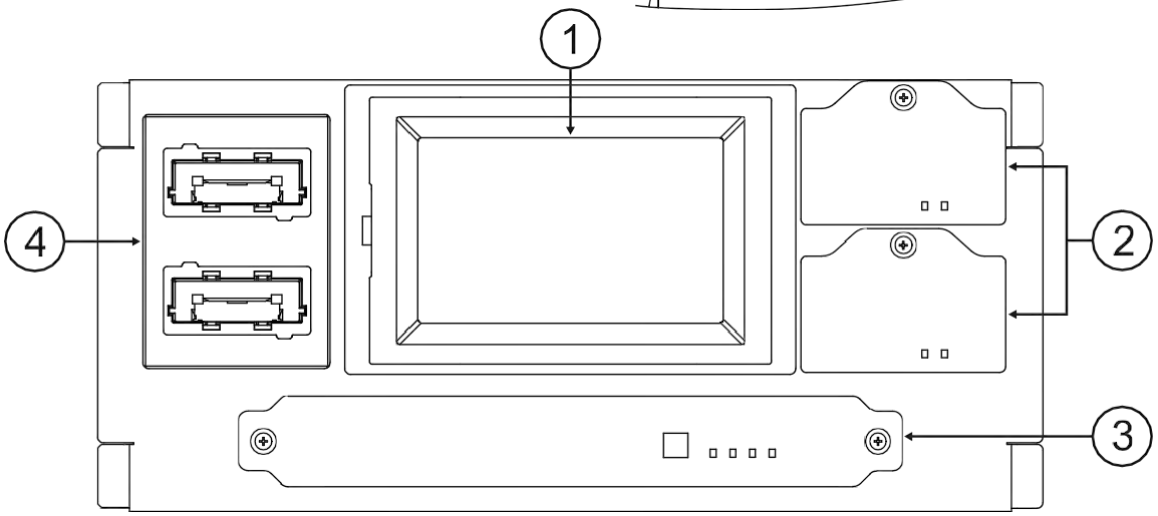

Back view - without back panel

1. Power Module (PM)
2. Bypass Module (BM)
3. Manual Bypass switch (SWMB)
4. Battery Switch (SWBATT)
5. Battery Unit
6. Connectivity Panel (CP)
7. Auxiliary Signal Board (ASB)
8. Relay Slot

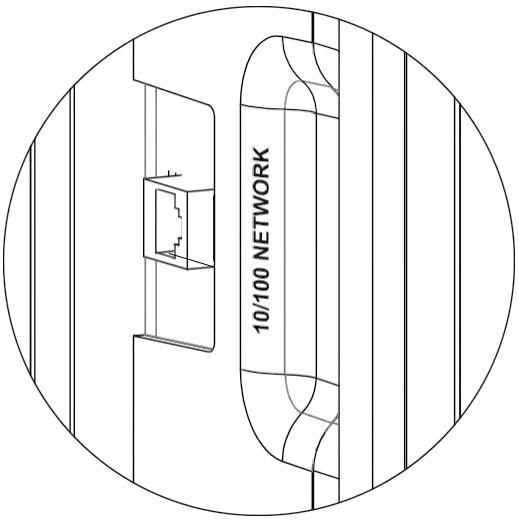
## Connectivity panel (CP)

Please unscrew the fastening knobs and remove the protection cover to access the components of the CP.

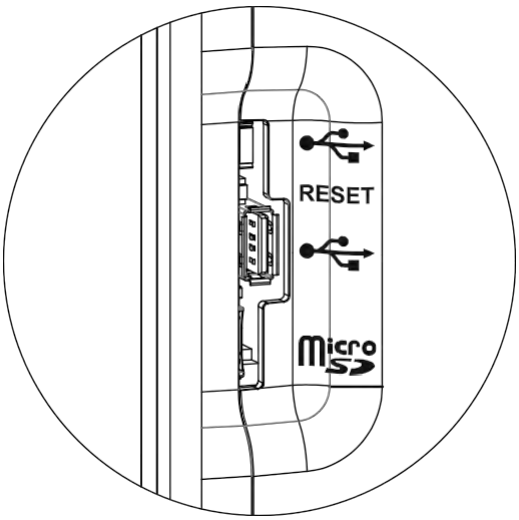





1. Main Communication Unit (MCU)
2. Power Supply Unit (PSU)
3. Monitoring Unit (MU)
4. Communication Slots for housing the expansion cards.




A network connection port is located on one side of the display to enable the remote operation of the system.




The connection ports (SA ports) reserved to the assistance are located on the other side of the display. Do not connect to the SAs if no specifically instructed.

# OPERATING MODE

## HIMOD HP Modular UPS system

The HIMOD HP UPS System is intended to ensure a perfect supply voltage for the equipment connected to it, both with and without a power supply network. Once connected and powered, the system generates an alternating sinusoidal voltage, with stable amplitude and frequency, regardless of surges and/or variations affecting the electric supply.
The Modular UPS System features two types of cabinets: Modular UPS Power Cabinet and Modular Battery Cabinet, whose main functions and features will be highlighted in this manual.

Every HIMOD HP UPS System appliance was designed and manufactured to be durable. It has however to be recalled that they are electric power equipment and, as such, they require regular maintenance. Furthermore, some of the components have, inevitably, a fixed life cycle, they must therefore be regularly checked and replaced, if the conditions requires it: in particular batteries, fans and in some cases electrolytic capacitors.
It is therefore recommended that a preventative maintenance program is implemented and performed by specialized staff licensed by the manufacturer.
Our Service Department is at your disposal for customizing preventative maintenance options to suit your requirements.

### Normal mode

During the NORMAL MODE, the system operates in the On Line double conversion mode. This mode provides maximum protection for the load, in fact the energy coming from the network (AC), after it is converted, is clean and stable in the output. The load voltage supply is a perfect sinewave, with frequency and voltage independent of the incoming mains supply (VFI technology). And more, in this operation mode the batteries are constantly kept in charged state.

### Battery mode

When the AC power network is not within the pre-set tolerance, for example, in case of blackout or voltage or frequency interferences, the system automatically switches to the BATTERY MODE operation collecting energy from the battery source.
When the AC network is clean and stable again, the system switches back to the NORMAL MODE operation.
The Power Walk-In function can be activated through the configuration software. This function allows, upon reconnection to the network (following an autonomy period), a progressive absorption from it, in order to avoid stressing (because of the inrush current) a generator unit installed upstream, if any. The duration of the transition mode can be set between 1 to 125 seconds. The default value is 10 seconds (when the function is enabled). During the transition mode the required power is partially collected from the batteries and partially from the network keeping the sinusoidal take-up. The battery charger is switched on again when the transition mode ends.

### Automatic static bypass mode

During this operation mode, the load is directly powered by the AC supply, therefore, any input interference impact fully on the load.

**Manual bypass mode**

**CAUTION: The SWMB disconnection switch installed on the HIMOD HP UPS Cabinet is not a maintenance bypass switch, therefore, there are dangerous voltages within the Cabinet, even if this disconnection switch is closed.**

**CAUTION: Contact a service centre should any malfunctions be detected. Maintenance can be carried out only by skilled staff authorised by the manufacturer.**

**CAUTION: dangerous voltages can be present inside the device, even if the input, bypass, output and battery switches are open.**
**The removal of the closure panels of the HIMOD HP UPS Cabined by non-skilled personnel is a source of danger and may cause damage to the operator, to the equipment and to the consumers connected to it.**

Order of the operations to be carried out for configuring the HIMOD HP UPS Cabinet in the MANUAL BYPASS MODE status without any cut-off of the power to the load.

Caution: if the system is in battery operation, the Manual Bypass insertion may cut off power to the load.

Close the Manual Bypass SWMB disconnection switch located behind the door: in this way the input is in short-circuit with the output.

Under this operation mode, any disturbance or blackout on the power supply line will impact on the supplied equipment (the Modular UPS Cabinet is no longer active and the load is directly connected to the network).

The display will show the completed switch to Manual Bypass.

Order of the operations to be carried out for restarting the HIMOD HP UPS Cabinet and closing the MANUAL BYPASS MODE without cutting off the power to the load **(execute only if no anomalies or malfunctions are present)**:

1. Ensure that the Bypass Module (see the “Modules and Units” chapter) is present and switched on.
2. Open the SWMB disconnection switch by rotating the knob anti-clockwise.
3. The Bypass Module activates and then the whole HIMOD HP UPS Cabinet is switched on.

## HIMOD HP Power cabinet

The HIMOD HP Power Cabinet may contain up to 7 Power Modules (PM) and one Bypass Module (BM).

PMs are UPSs connected in parallel in order to increase reliability in the supply of power to the load and the power available on output (ref. to the "Modules and Units" chapters)
The load that can be applied to a Modular UPS Cabinet can be higher than the load that can be sustained by each unit thanks to automatic power-sharing. Increased reliability is only achieved on condition that the total system power, with one or more PMs deactivated, remains higher than the demand. Said condition is always achieved by adding at least one redundant PM to the minimum number of elements required to power the load, so that after the automatic exclusion of a faulty PM, the power supply can continue in a correct manner.
Each PM is equipped with a smart control unit, connected through a data bus with the other PMs of the system, achieving a high reliability distributed logic.

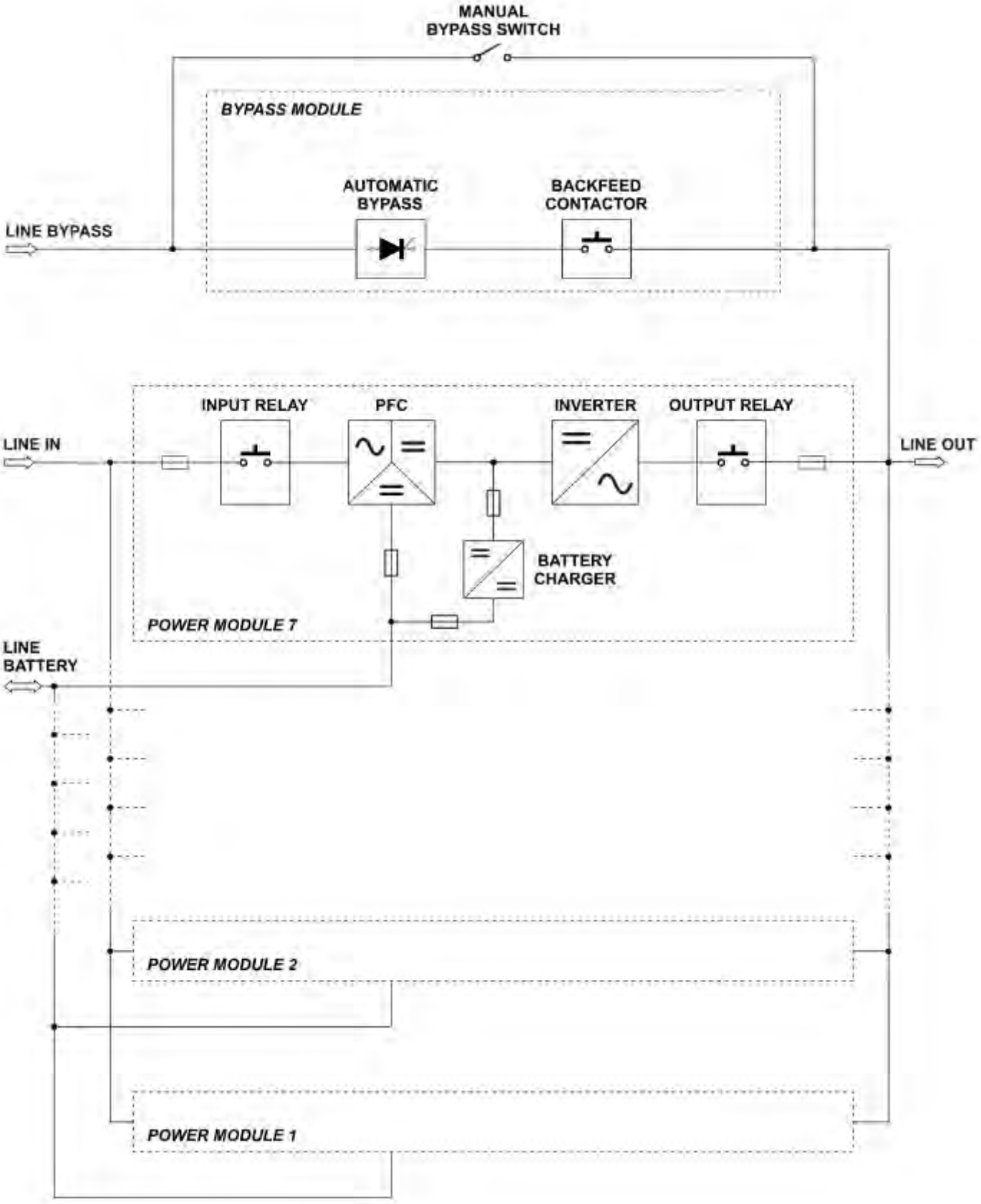
**Note:** any redundancy of the PMs may be set-up during configuration, but, in the case of a HIMOD HP Power Cabinet **equipped of all the 7 PMs**, one of them is marked in any case as redundant.

The Bypass Module (BM) operates as the central AUTOMATIC BYPASS for the whole HIMOD HP Power Cabinet (ref. to chapter “Modules and Units”).

In order to further increase the power of the system, multiple HIMOD HP Power Cabinets can be connected in parallel, up to 4. The maximum configuration will be therefore 28 PMs connected in parallel, of which at least 4 are redundant.

**CAUTION: the HIMOD HP System has only a single battery supply, therefore all the HIMOD HP Power Cabinets must share their batteries.**

A wring diagram of the HIMOD HP Power Cabinet is provided below.



## HIMOD HP Battery cabinet

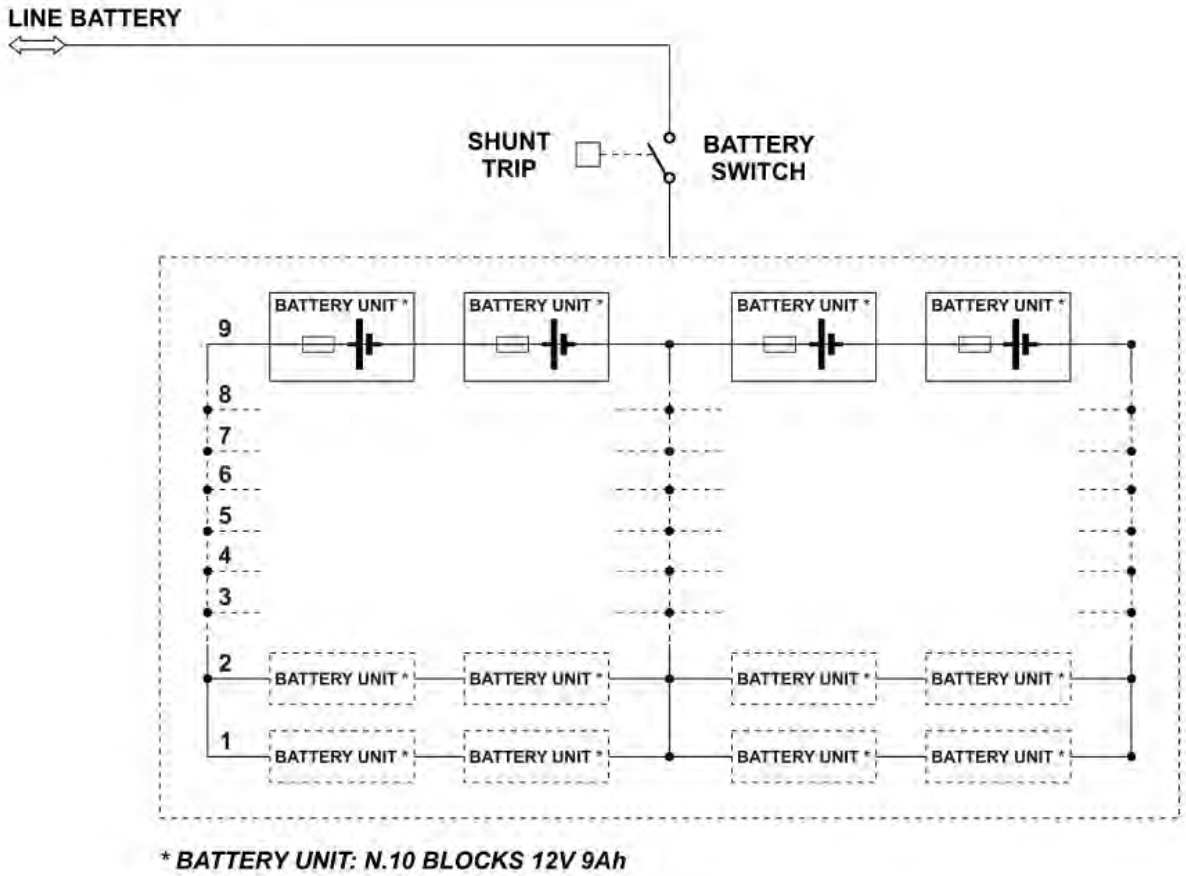
The HIMOD HP Battery Cabinet consists of 9 shelves, each of which may contain 4 Battery Units (BU). The BU contains 10 of 12V battery packs (ref to “Modules and Units” chapter).
The HIMOD HP Battery Cabinet has an electronic supervision system which, through voltage and current sampling, is able to measure the condition and any anomaly of each BU. The collected data are sent to the system through a data bus and shown on the display of the HIMOD HP UPS Cabinet.
Furthermore, on the HIMOD HP Battery Cabinet there is a SWBATT disconnection switch which allows to disconnect the BUs from the connection line to the HIMOD HP Power Cabinet. The cabinet features also an opto-isolated input which allows the remote opening of the SWBATT.

**CAUTION: each shelf of the HIMOD HP Battery Cabinet can be filled (with the 4 BUs) based on the autonomy requirements of the system (up to a maximum of 9 shelves). The minimum number of the complete battery shelves must follow the rule on table:**

| Number of non redundant PMs | Minimum number of battery shelves |
|---|---|
| 1 | 2 |
| 2 | 5 |
| 3 | 9 |
| 4 | 12 |
| .. | .. |
| N | Nx3 |

Multiple HIMOD HP Battery Cabinets, up to 10, can be present in the HIMOD HP UPS System.
The system features a single battery supply, therefore even if multiple HIMOD HP Power Cabinets are present, all the HIMOD HP Battery Cabinets must be shared.

A wiring diagram of the HIMOD HP Battery Cabinet is provided below.



### Modular PowerPlus cabinet

The Modular PowerPlus Cabinet may contain up to 3 Power Modules (PM), 1 Bypass Module (BM) and 5 battery shelves. Each shelf may contain 4 Battery Units (BU). Each BU contains 10 of 12V batteries. Refer to “Modules and Units” chapter.

PMs are UPSs connected in parallel in order to increase reliability in the supply of power to the load and the power available on output.
The load that can be applied to a HIMOD HP Power Cabinet can be higher than the load that can be sustained by each unit thanks to automatic power-sharing. Increased reliability is only achieved on condition that the total system power, with one or more PMs deactivated, remains higher than the demand. Said condition is always achieved by adding at least one redundant PM to the minimum number of elements required to power the load, so that after the automatic exclusion of a faulty PM, the power supply can continue in a correct way.
Each PM is equipped with a smart control unit, connected through a data bus with the other PMs of the system, achieving a high reliability distributed logic.

**Note:** the redundancy of the PMs may be set-up during configuration.

The Bypass Module (BM) operates as the central AUTOMATIC BYPASS for the whole HIMOD HP UPS Power Cabinet (ref. to chapter “Modules and Units”).

In order to further increase the power of the system, multiple HIMOD HP PowerPlus Cabinets can be connected in parallel, up to 4. The maximum configuration will be therefore 12 PMs connected in parallel, of which at least 4 are redundant.

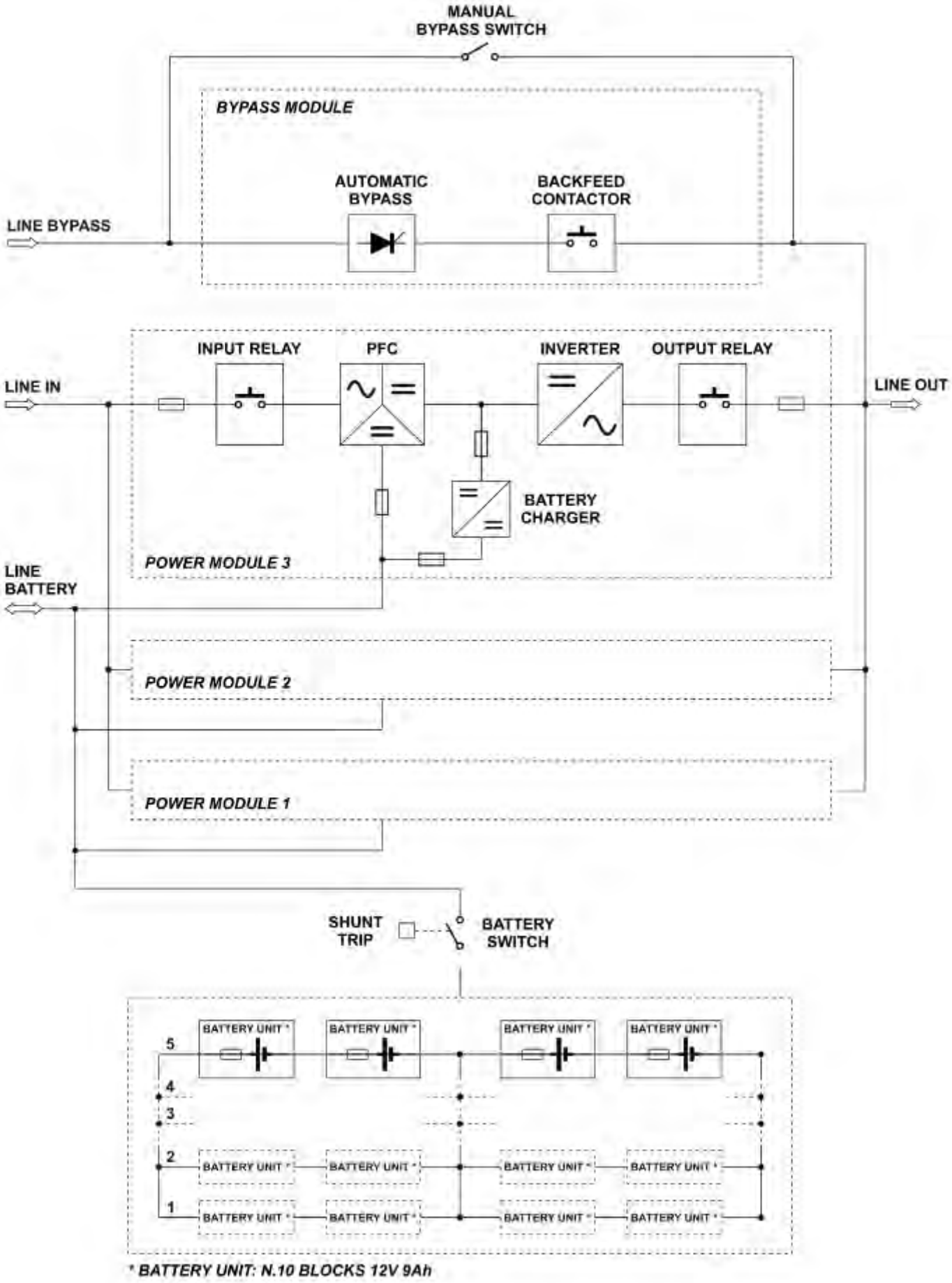
**CAUTION: the HIMOD HP PowerPlus System can use internal batteries, external batteries or both. The system must share all internal and external batteries. It’s mandatory to use HIMOD HP Battery Cabinets as external battery source if internal Battery Units are used. Is not allowed to connect other types of external batteries if internal PowerPlus batteries are used.**

The HIMOD HP PowerPlus Cabinet has an electronic supervision system which, through voltage and current sampling, is able to measure the condition and any anomaly of each Battery Unit. The collected data are sent to the system through a data bus and shown on the display of the Cabinet.
Furthermore, on the HIMOD HP PowerPlus Cabinet there is a SWBATT disconnection switch which allows to disconnect the BUs from the connection line to the UPS Cabinet. The cabinet features also an opto-isolated input which allows the remote opening of the SWBATT.

**CAUTION: each shelf of the HIMOD HP PowerPlus Cabinet can be filled (with the 4 BUs) based on the autonomy requirements of the system (up to a maximum of 5 shelves). The minimum number of the complete battery shelves must follow the rule on table:**

| Number of non redundant PMs | Minimum number of battery shelves |
|---|---|
| 1 | 2 |
| 2 | 5 |
| 3 | 9 |
| 4 | 12 |
| .. | .. |
| N | Nx3 |

A wring diagram of the HIMOD HP PowerPlus Cabinet is provided below.



## Cabinet installation

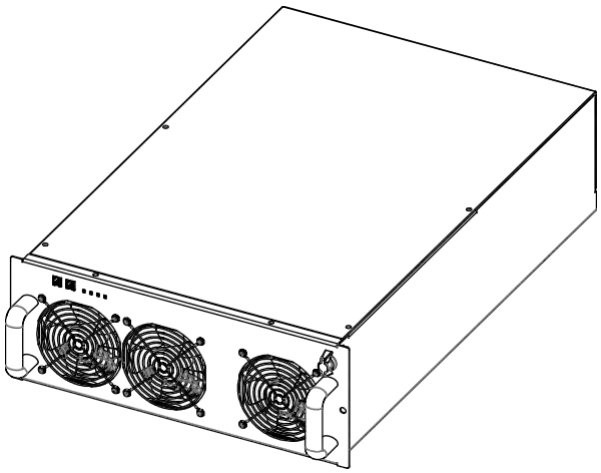
**For the installation of the HIMOD HP PowerPlus Cabinet and the HIMOD HP Battery Cabinet please refer to the specific installation manual.**

## Modules and units installation

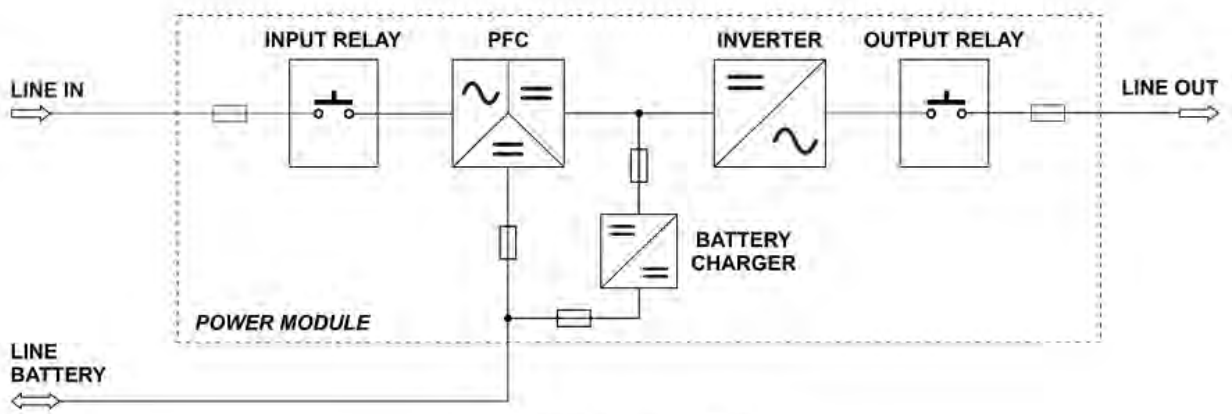
The cabinet consists of hot-swap modules and units which allow a quick maintenance and expandability of the system. The hot- swap parts are:

- Power Module (PM)
- Bypass Module (BM)
- Monitoring Unit (MU)
- Power Supply Unit (PSU)
- Main Communication Unit (MCU)
- Battery Unit (BU)

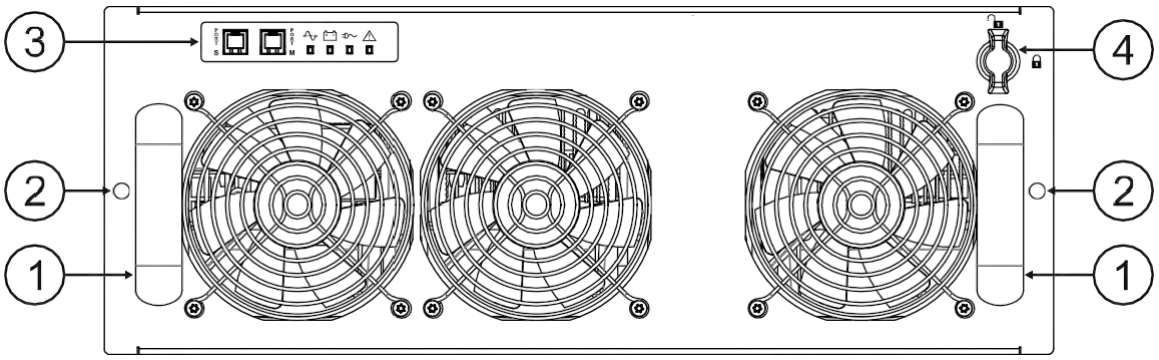
### Power module (PM)



The Power Module (PM) is a double conversion three-phase UPS module. The wiring diagram of the PM, which shows its individual components, is provided below:




*Power Module wiring diagram*



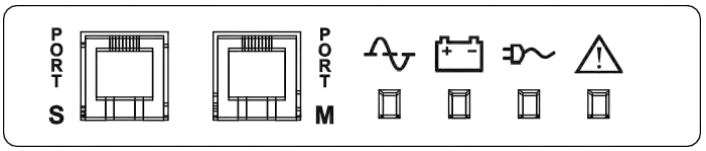

① Handles for inserting and extracting the cabinet

② Holes for fastening the PM to the cabinet using the specific screws

③ Interface panel

④ Switch Lock: rotating switch and mechanical lock of the PM to the cabinet

### Interface panel




**PORT S**
**PORT M** Communication ports reserved to the assistance

Normal Operation (green colour)

Battery Working (yellow colour)

Bypass Working (green colour)

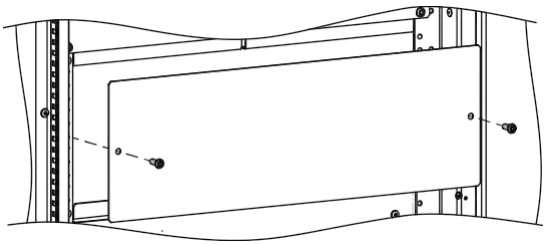
Alarm (red colour)

## Insertion / extraction procedure

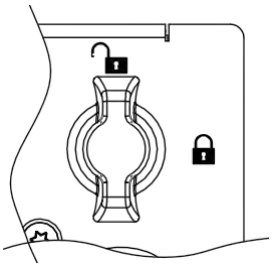
**The following operations can be performed only by skilled and specifically trained assistance staff. When the PM is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane.**

**The PM, due to its weight, must be handled by at least two persons. Strictly comply with the instructions below following the listed sequence.**

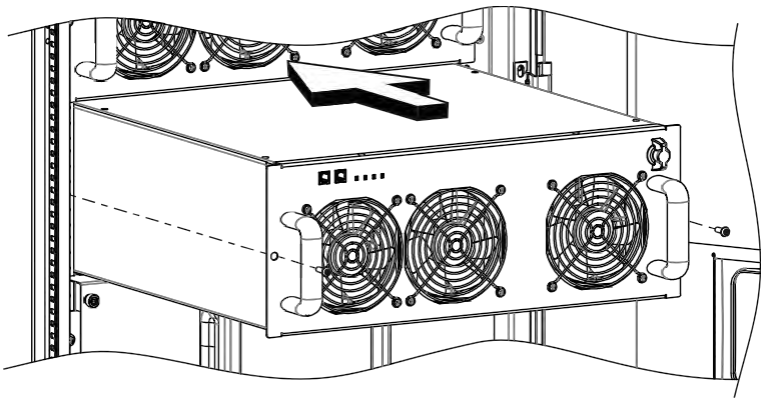
### Insertion



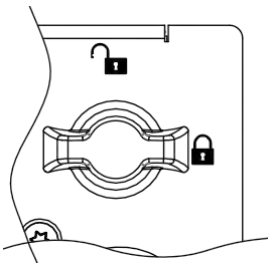
1. **Note: the PM must be inserted in the slot of a previously removed one or, in case of first installation, in the first free dedicated slot of the cabinet starting from the base.** If present, remove the protection cover and store it together with the fastening screws.



2. Check that the Switch Lock is in open position (see picture on the right).



3. Carefully insert the PM in the cabinet (requires two people) and fasten it using the supplied screws, as shown in the picture.



4. Turn the Switch Lock 90 Degrees clockwise to the close position (See picture on the right).

5. Switch on the PM using the display.

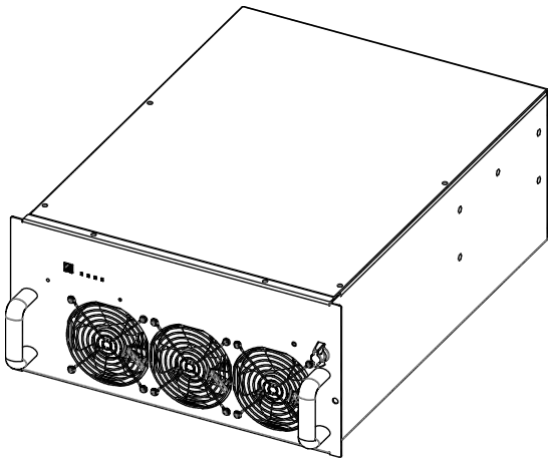
### Extraction

**Note: before extracting any PM, please ensure that the remaining PMs are capable to stand the whole load.**

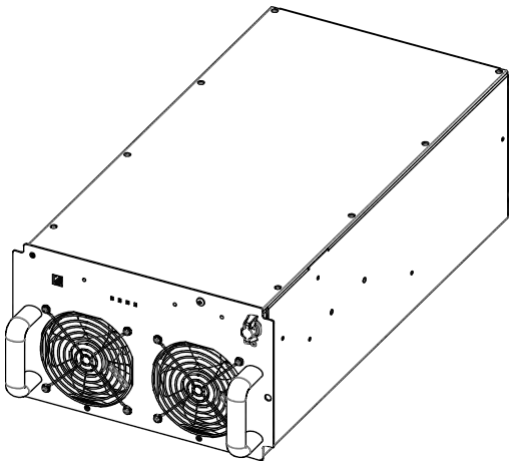
To extract the PM from the cabinet, reverse the procedure described above. Briefly:

1. Switch off the PM using the display
2. Turn the Switch Lock 90 degrees anticlockwise to the open position .
3. Wait until the front LEDs are switched off.
4. Remove the two side fastening screws and store them.
5. Carefully extract the PM from its housing. This operation requires two persons.
6. **Caution**: when the PM is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane. Therefore, in the case where a new PM is not immediately inserted, install the supplied protection cover using the dedicated screws.

## Bypass module (BM)

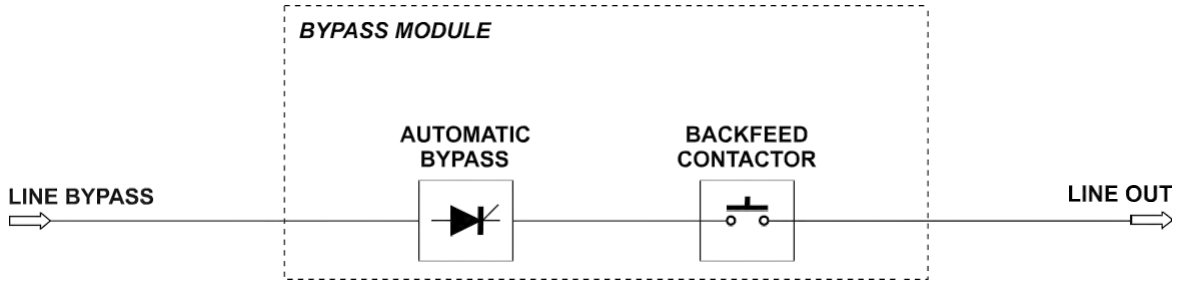


HIMOD HP Power Cabinet



HIMOD HP PowerPlus Cabinet

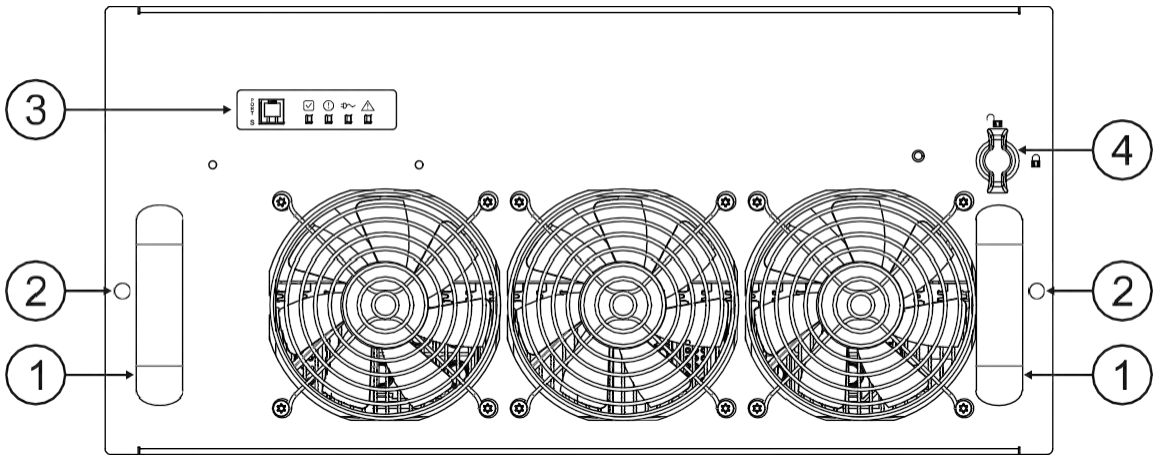
The Bypass Module (BM) allows the direct connection, electronically governed, between input an output of the HIMOD HP UPS Cabinet. The wiring diagram of the BM, which shows its individual components, is provided below:



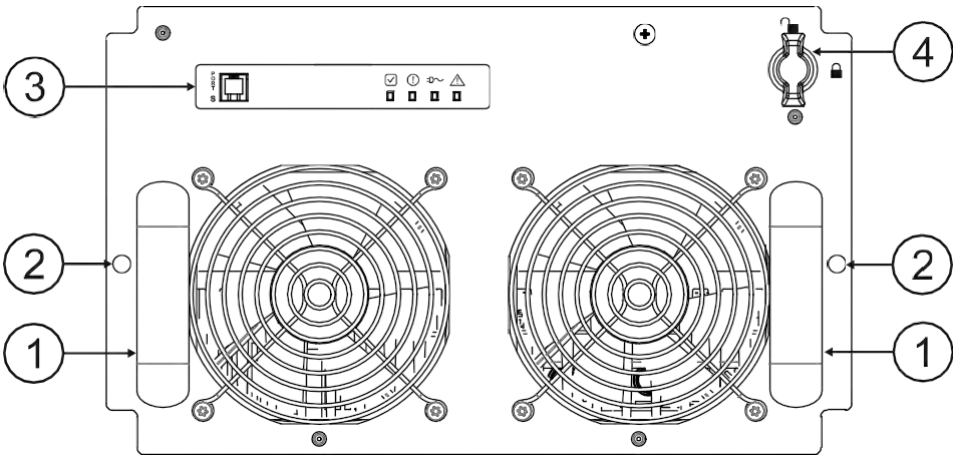

Bypass Module wiring diagram

### Backfeed protection

BM is equipped with an internal protection system which, if a backfeed is detected, it cuts the bypass line (through a metal cut-off device). In the event it cuts in, the load is in any case powered by the PM also during the battery operation.




HIMOD HP Power Cabinet




HIMOD HP PowerPlus Cabinet

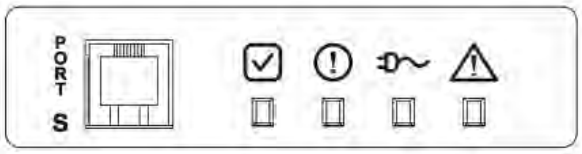
① Handles for inserting and extracting the cabinet

② Holes for fastening the BM to the cabinet using the specific screws

③ Interface panel

④ Switch Lock: rotating switch and mechanical lock of the BM to the cabinet

## Interface panel




| | |
|---|---|
| PORT S | Communication port reserved to the assistance |
| | Bypass Ready (green colour) |
| | Anomaly (yellow colour) |
| | Bypass Working (green colour) |
| | Alarm (red colour) |

## Insertion / extraction procedure

**The following operations can be performed only by skilled and specifically trained assistance staff.**

**When the BM is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane.**

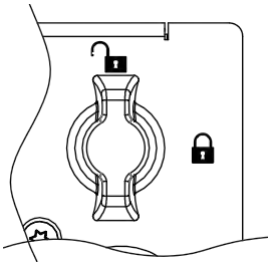
**The BM, due to its weight, must be handled by at least two people.**

**The BM is preinstalled by the manufacturer, extract it only in case of maintenance or replacement. Strictly comply with the instructions below following the listed sequence.**

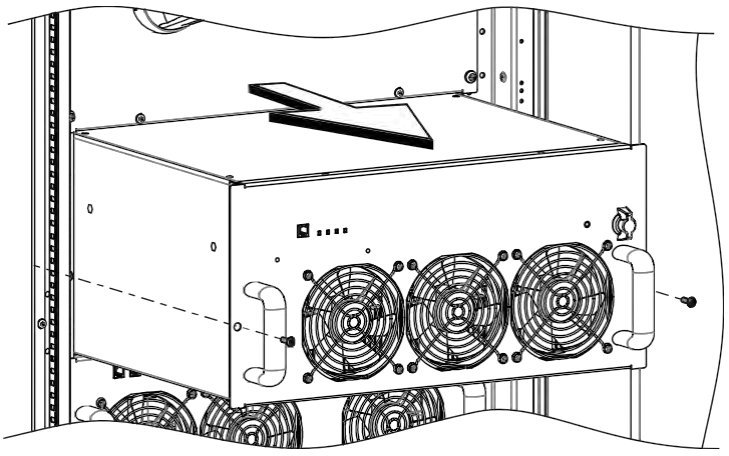
### Extraction

**CAUTION: Before performing the operations below, ensure that the shutting of the BM does not lead to the loss of the load.**

1. Switch off the BM using the display
2. Turn the Switch Lock 90 degrees anticlockwise to the open position (see picture on the right).
3. Wait until the front LEDs are switched off.



4. Remove the two side fastening screws and store them.
5. Carefully extract the BM from its housing. This operation requires two persons.

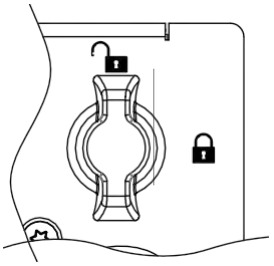


6. **Caution**: when the BM is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane. Therefore, in the case where a new BM is not immediately inserted, install the supplied protection cover using the dedicated screws.

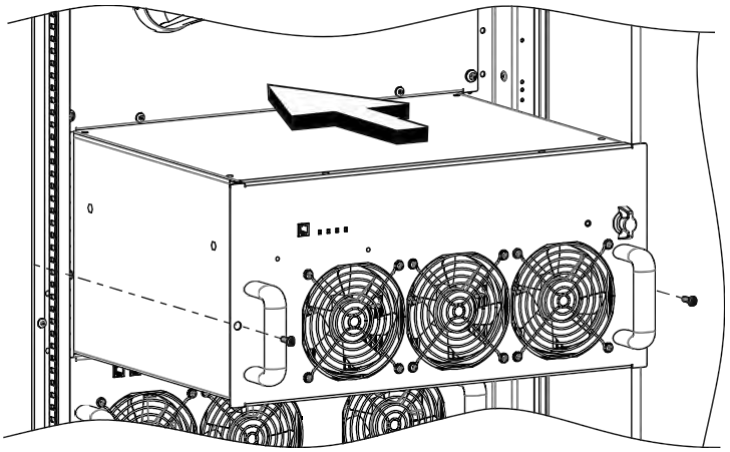
### Insertion

1. If present, remove the protection cover and store it together with the fastening screws.

2. Check that the Switch Lock is in open position (see picture on the right).

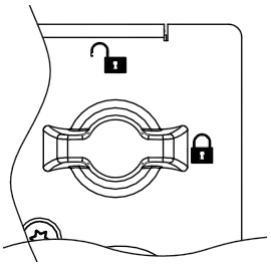


3. Carefully insert the BM in the cabinet (requires two persons) and fasten it using the supplied screws, as shown in the picture.



4. Turn the Switch Lock 90 degrees clockwise to the close position (see picture on the right).

   During the first start-up, the red alarm LED will blink for 10 s, after which, if the start up was successful, the green normal operation LED will switch on

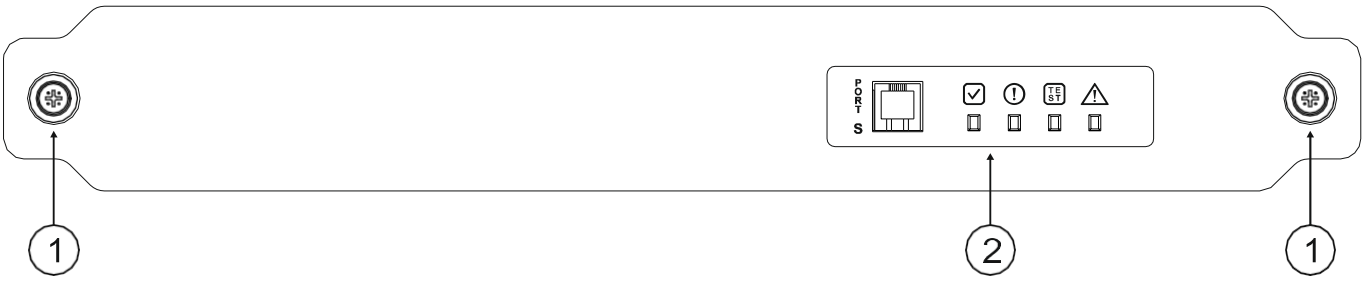


## Monitoring unit (MU)

In the HIMOD HP Power Cabinet, the Monitoring Unit (MU) monitors the status of the internal and external disconnection switches, the status of the Power Supply Unit and the internal and external temperature values.

In the HIMOD HP Battery Cabinet, the MU, further than monitoring the Power Supply Unit and the internal temperature values, supervises the status of each Battery Unit.

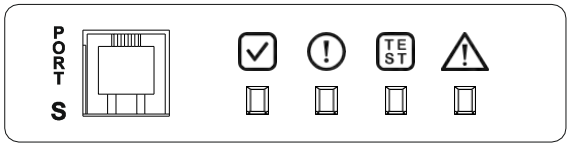
At the first installation of a single Cabinet, through specific set ups made on the MU, the address and the type of cabinet are notified to the MU (ref. to “Configuration” chapter)




1 Fastening knobs

2 Interface panel

### Interface panel




**PORT S** Communication port reserved to the assistance

Normal operation (green colour)

Anomaly (yellow colour)

Test mode (green colour)

Alarm (red colour)

## Insertion / Extraction procedure

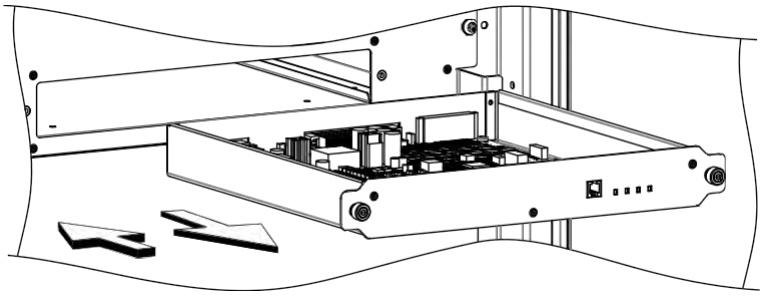
**The following operations can be performed only by skilled and specifically trained assistance staff.**

**When the MU is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane.**

**The MU is preinstalled by the manufacturer. Remove the MU only in case of maintenance or replacement. Strictly comply with the instructions below following the listed sequence.**

### Extraction

Unscrew the two side fastening knobs. Using the knobs, carefully pull and remove the MU.

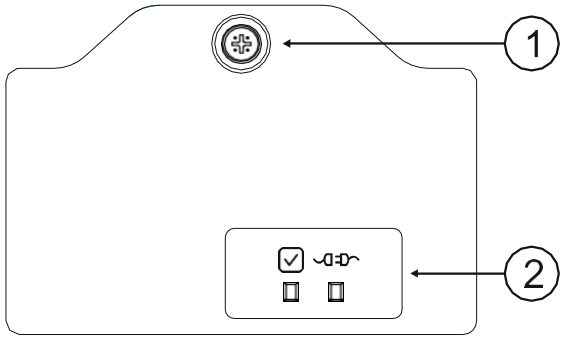


### Insertion

Carefully insert the MU in the dedicated slot. Fasten the MU by tightening the side knobs.

## Power supply unit (PSU)

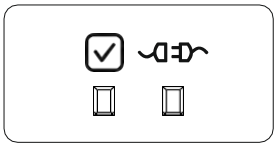
The Power Supply Unit (PSU) is a low voltage power supply, required for the operation of the electronics assigned to the monitoring of the Cabinet. In the HIMOD HP Power Cabinet the PSU powers the MCU, MU and ASB, while in the Battery Cabinet powers the MU the circuit for opening the SWBATT.
Two PSUs are installed in the Cabinet and are monitored by the MU, one of them is redundant.




1 Fastening knobs

2 Interface panel

### Interface panel



Power good (green colour)
Load on (green colour)

### Insertion / Extraction procedure

**The following operations can be performed only by skilled and specifically trained assistance staff.**

**When the PSU is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane.**

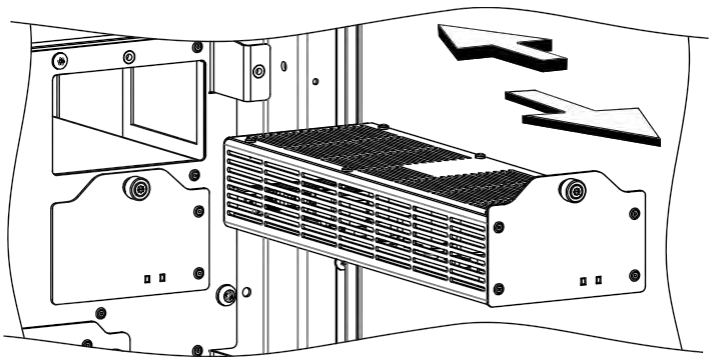
**The PSU is preinstalled by the manufacturer. Remove the PSU only in case of maintenance or replacement. Strictly comply with the instructions below following the listed sequence.**

- **Extraction**

  **Unscrew the fastening knob.**
  Using the knob, carefully pull and remove the PSU.

- **Insertion**

  Carefully insert the PSU in the dedicated slot. Fasten the PSU by tightening the knob.



## Main communication unit (MCU)

The Main Communication Unit (MCU) monitors the modules and units inserted in the HIMOD HP Power Cabinet and also all the other Cabinets in the system. The MCU is equipped with a 7” colour touch screen display which shows in an easy an intuitive way all the electric values and the system status. It also allows to perform the main commands, set-ups and configurations.

### Insertion / Extraction procedure

**The following operations can be performed only by skilled and specifically trained assistance staff.**

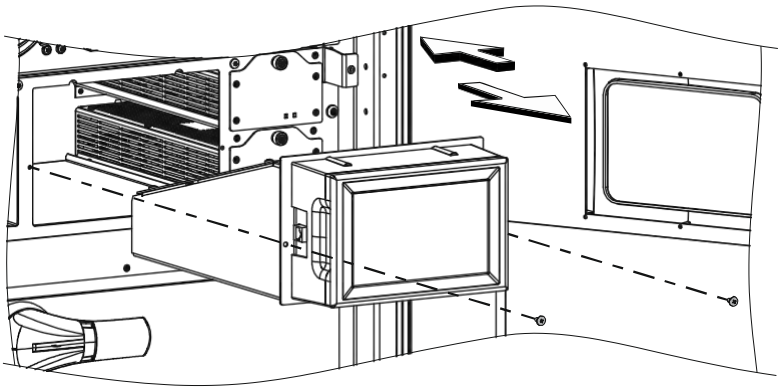
**When the MCU is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane.**

**The MCU is preinstalled by the manufacturer. Remove the MCU only in case of maintenance or replacement.**

**Strictly comply with the instructions below following the listed sequence.**

#### Extraction

Undo the two side screws.
Using the dedicated handles on the sides of the display, pull carefully and remove the MCU.

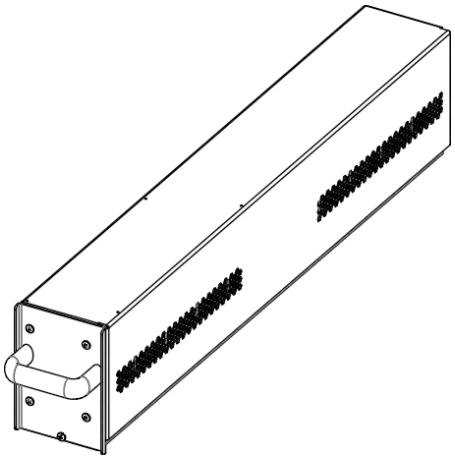


#### Insertion

Carefully insert the MCU in the dedicated slot. Fasten the MCU by fastening the two side screws removed before.

## BATTERY UNIT (BU)

The Battery Unit (BU) contains 10 of 12V battery packs (120Vdc) which can be replace in case of maintenance.



### Insertion / Extraction procedure

**The following operations can be performed only by skilled and specifically trained assistance staff.**

**When the BU is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane.**

**Never touch the base of the BU near the connector: a dangerous voltage is present.**

**Open the SWBATT battery disconnection switch of the Battery Cabinet prior to extraction or insertion of a BU.**

**The BU, due to its weight, must be handled by at least two persons. Strictly comply with the instructions below following the listed sequence.**

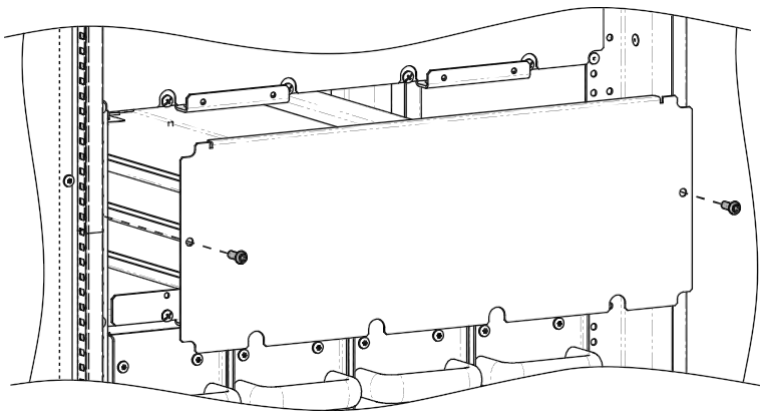
#### Insertion

**PRIOR TO INSERTION OF A BU, OPEN THE SWBATT BATTERY DISCONNECTION SWITCH OF THE BATTERY CABINET!**

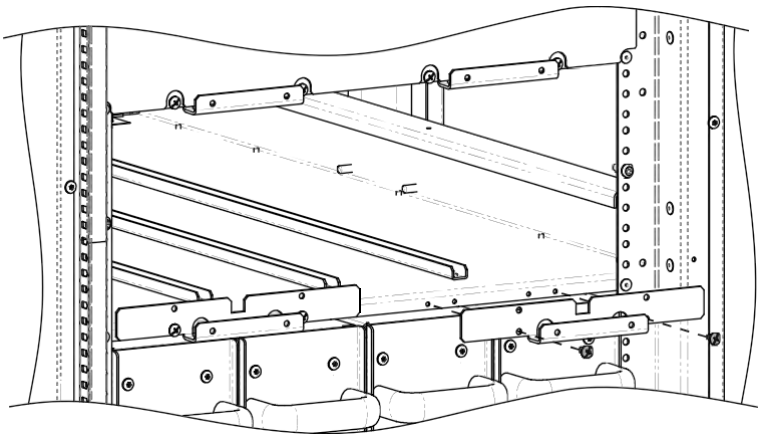
**INSERT ONLY BUs WITH CHARGED BATTERIES**

**NOTE: the BU must be inserted in the place of a previously removed one or, in case of first installation, in the first free dedicated slot of the Battery Cabinet starting from the base.**

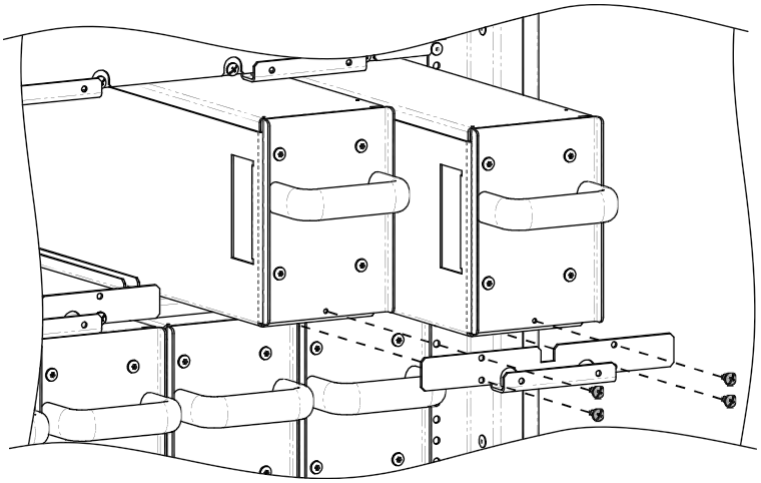
1. If present, remove the protection cover and store it together with the fastening screws.



2. If present, remove the locking bracket and store it together with the fastening screws.



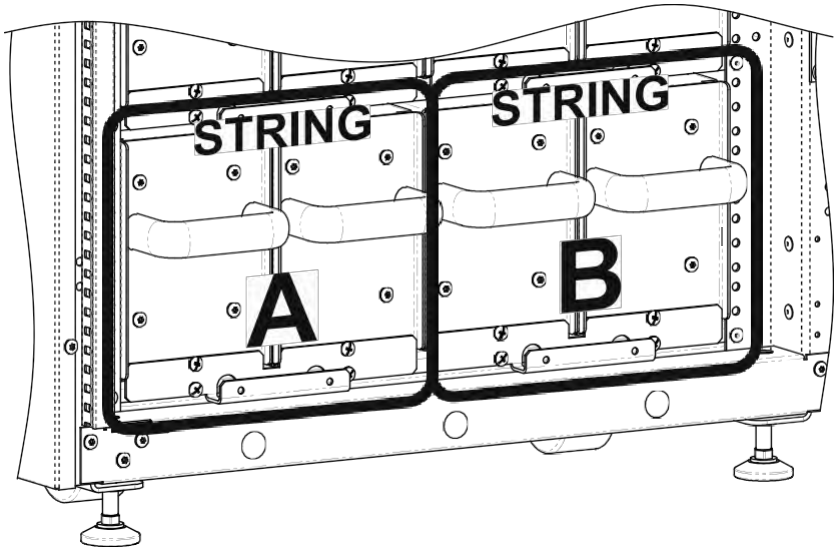
3. Insert the BU in the cabinet.
   Remove the screw located in the front part of the BU in the low/front part.
   Fasten the BU to the cabinet using the dedicated bracket and all the screws removed before.



### Extraction

**PRIOR TO EXTRACTION OF A BU, OPEN THE SWBATT BATTERY DISCONNECTION SWITCH OF THE BATTERY CABINET!**

**NOTE: when a BU is replaced, it is required to replace also the other BU of the same A or B string.**




To extract the BU from the cabinet, reverse the procedure described above. Briefly:

1. **Ensure that the SWBATT is open.**
2. If present, remove the locking bracket and store it together with the fastening screws.
3. Carefully extract the BU from its housing. This operation requires two persons.
4. **Caution**: when the BU is not inserted, uncovered parts with dangerous voltage are present on the corresponding backplane. Therefore, in the case where a new BU is not immediately inserted, install the supplied protection cover using the dedicated screws.

## Battery maintenance

**CAUTION: DANGEROUS VOLTAGE INSIDE!**

**Never open the BU for any reason, if any anomaly is noted, contact the assistance service.**

Batteries, in order to maintain a high efficiency and durability must be regularly charged using the HIMOD HP UPS System itself.

Batteries are subject to the self-discharge phenomenon. In the case where BU or Battery Box are stored and not immediately installed, an appropriate recharge must be planned.
To recharge the batteries, just connect the Battery Cabinet/Battery Box to a HIMOD HP System in “NORMAL OPERATION” for at least 24 hours.
For long storage periods, contact the assistance service.

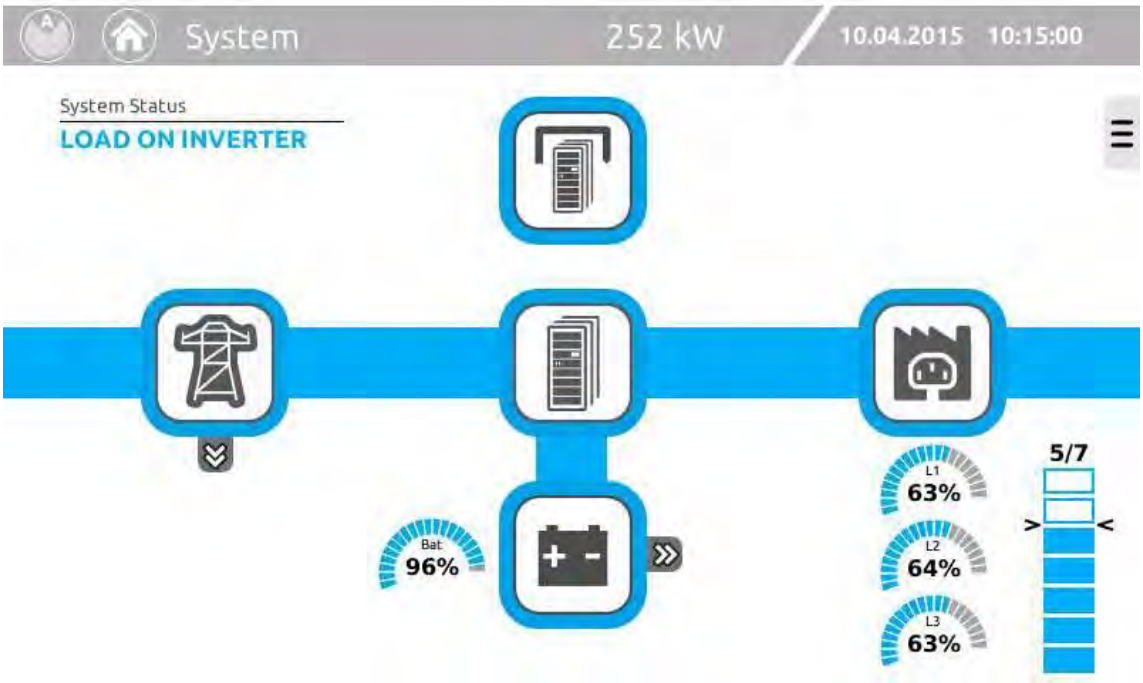
# Display

## Overview

Each HIMOD HP Power Cabinet is equipped with a touch screen display, through which is possible to:

- display the system / cabinet / module status;
- send switch on switch off / battery test / bypass operation commands;
- configure the system, access levels and the network services (e-mail sending, anomaly reporting, etc.).

The first "Home" page shows schematically the general operation status of the system. It is possible to interact with the system and see its different parameters through the icons.




### Status BAR

The status bar on top shows the title of the current page and the rated power of the system (any redundancy included). The system date and hour are displayed on the right. The name of the cabinet (A, B, C or D) is displayed on the left.

## Icons and symbols


System input mains status


System output status


System automatic static bypass status


System battery status


System status

% Battery charge gauge

% Load gauge phase 1

% Load gauge phase 2

% Load gauge phase 3


Redundancy bar (see paragraph “Load level and redundancy system status”)

In general, the colour and the shape of the icons provides an instant information on the status.


Grey colour: communication lost (Com-Lost).


Light blue colour: normal status.


Blue colour: static bypass operation.


Orange colour: anomaly.


Red colour: alarm.


Display of the progress (for example during the initial start-up).

The Homepage graphically represents the system status and the energy flows. The colour coding of the coloured bands has the following meaning:


Blue, energy flow from bypass.


Light Blue, energy flow from inverter.

### Load level and redundancy system status

HIMOD HP display represent in the home page a graphic bar showing the load level and the system redundancy

**Load level:** The bar is a comprehensive representation of the number of PM set including their status in function of load level, and operative conditions, as below shown:

PM configured and necessary to supply the load

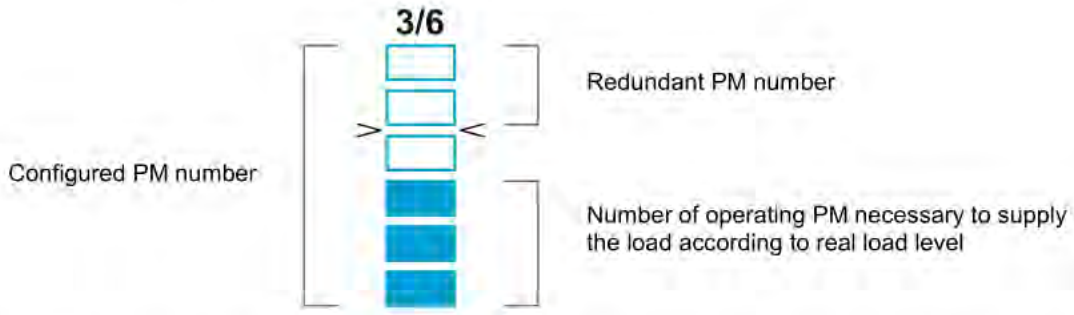
PM configured but not necessary to supply the load

PM configured but not available to supply the load

NOTE:
Every full colored box in the bar represent the system load level with 42 kW step.
Whenever the installation includes one or more power cabinet in parallel the bar show the system load level and not the single cabinet load level.

**Redundancy:** To increase the system reliability customer can add a number of additional PM (redundant PM) rather than just fit those strictly necessary to supply the load.
All PM, including the redundant units operate together sharing the load.
Thanks to this reliable feature, we warmly recommend to set one or more redundant PM according with the power needed and the installation type.
With a power cabinet full equipped (seven PM) at least one unit should be set as redundant unit.
Below are portrayed the possible bar status (six PM operating in the examples) according with the system conditions in function of load level, redundancy and PM availability.

1-case: Normal operation (blue color)




2-Case: Redundancy level reduction (Orange color)


3-Case: Redundancy level reduction due to PM unavailability (Orange color)


4-Case: Redundancy lost due to load rate (Red color)

5-Case: Redundancy lost due to complete redundant PM unavailability (Red color)



### Active text areas


Area of the display reserved to the textual description of the system status.

Area of the display reserved to the textual description of the cabinet status.

Area of the display reserved to the textual description of the module status.

Area of the display reserved to the textual description of the alarm list. The error code is shown between square brackets.

Area of the display reserved for displaying the main electric values related to the input of the system.

Area of the display reserved for displaying the main electric values related to the battery.

Area of the display reserved for displaying the main electric values related to the bypass line.

Area of the display reserved for displaying the main electric values related to the output of the system.

### Navigation

**HOME** Key for closing the currently selected page and returning to Home.

**PREVIOUS** Key for returning to the previously displayed bard.

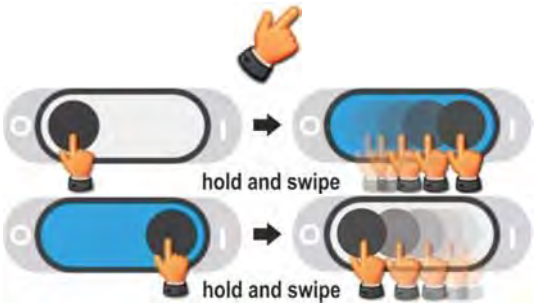
**SEND E-MAIL** Key for sending to the pre-set addresses an e-mail containing the current screen shot.

Menu expansion / reduction Tab keys (the menu reduces automatically after a few seconds). The menu may change basing on the pre-set access level.

Expansion / reduction keys of the mains and battery detail sections.

## System status display

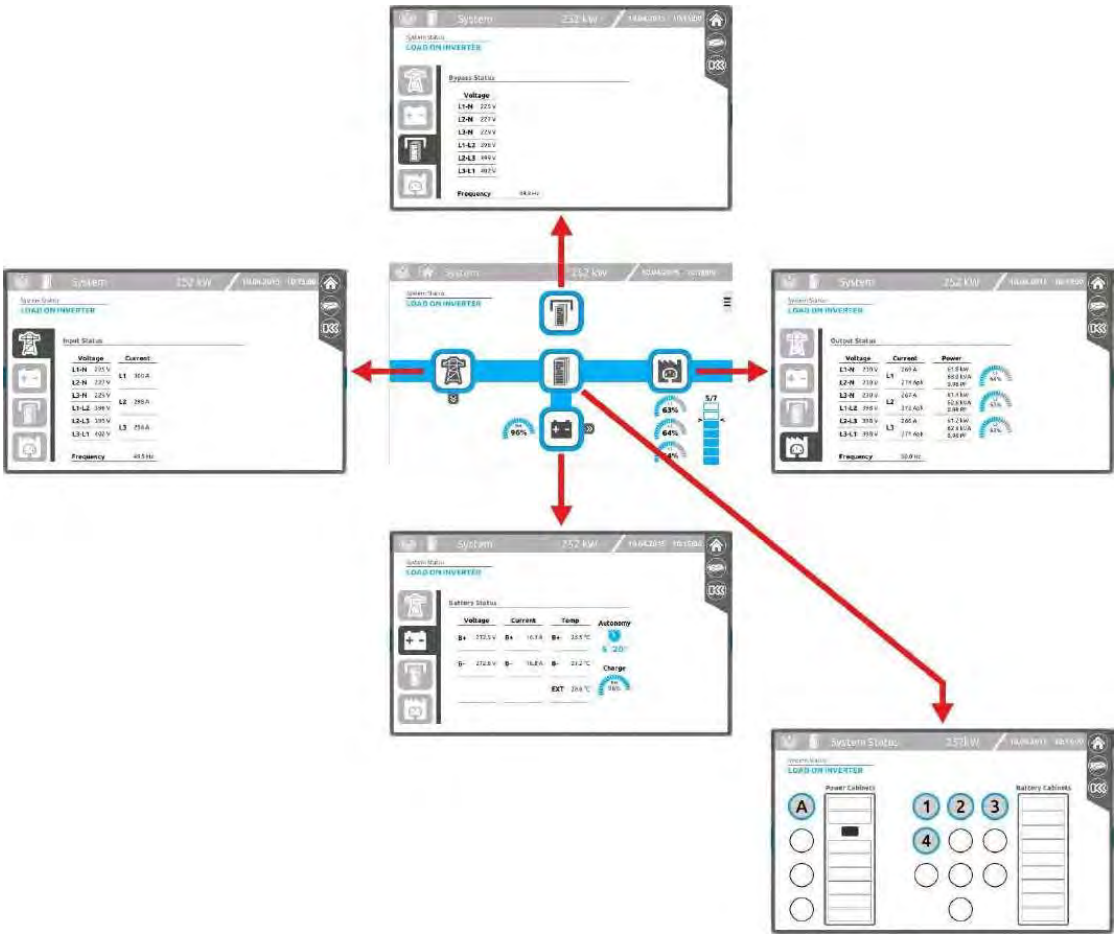
### Legend of the used symbols




| | |
|---|---|
| **TOUCH** | If present, it highlights the main elements which can be selected from the screen. |
| **SWIPE LEFT-RIGHT** | Movement on the sliding graphical elements for the status switch from O to I. |
| **SWIPE RIGHT- LEFT** | Movement on the sliding graphical elements for the status switch from I to O. |

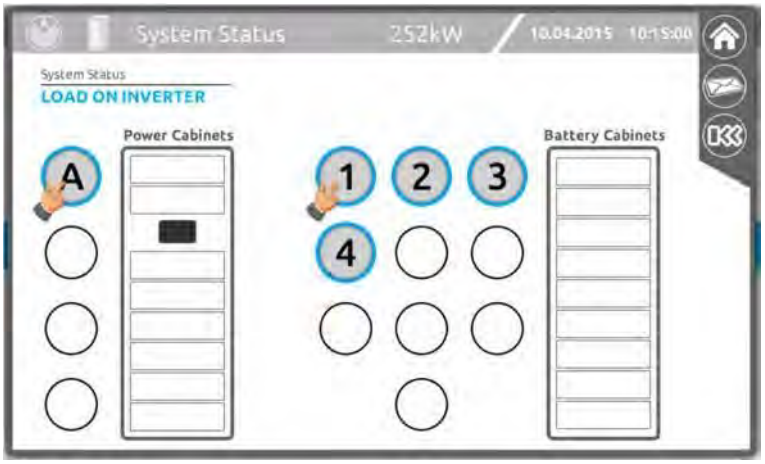
### "System" Homepage

The specific pages which display the status and the main electric values of the system can be accessed through the icons.



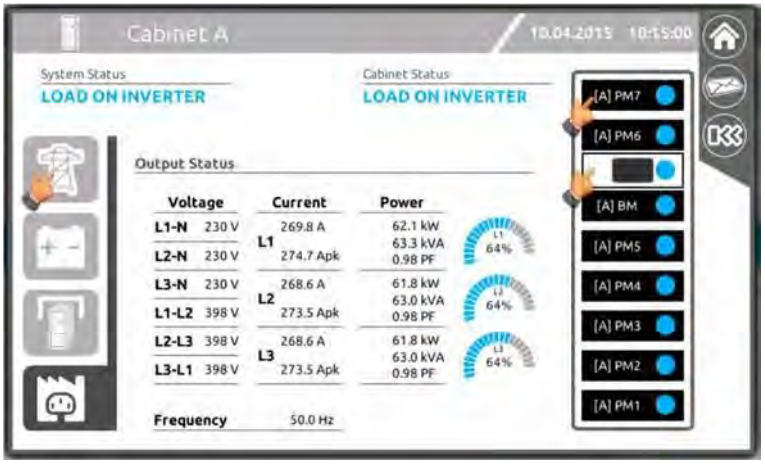
### “System status” page

The four keys on the left, further than providing an instant information on the status of the cabinet through their colour allow to display detailed information on each single cabinet ("Cabinet" page).
The ten keys in the middle, further than providing an instant information on the status of the battery cabinets, allow to display detailed information on each single battery cabinet.




### “Cabinet” page

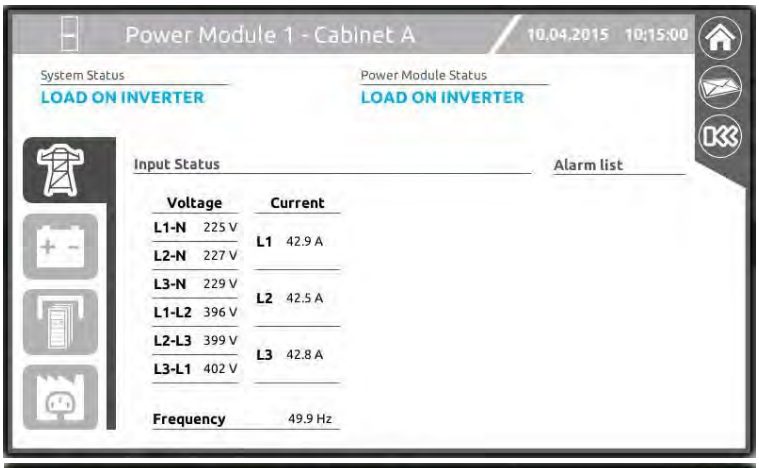
The "Cabinet" page displays the status of all the modules and of the main electric values of the cabinet.

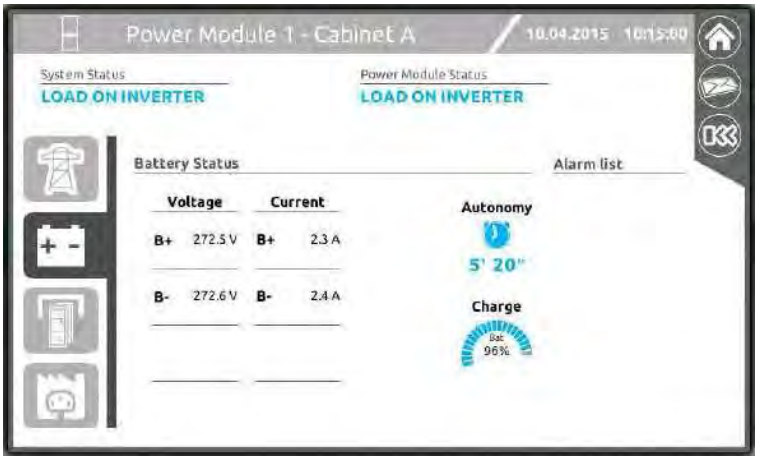


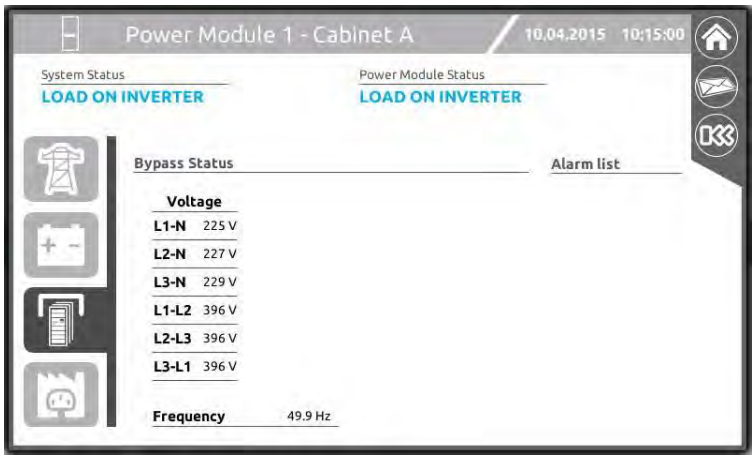

By operating the left Tab menu, it is possible to display the electric values of the cabinet related to the input, the batteries, the bypass line and the output.
The detailed page of the measured electric values of the specific module selected can be displayed by touching the relevant module.

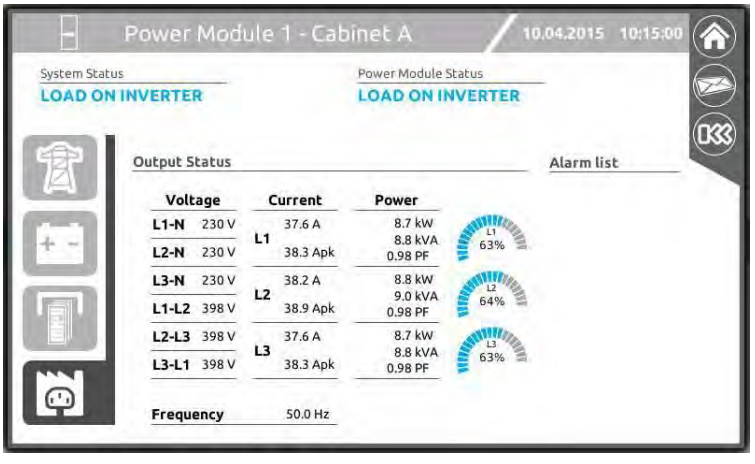
### “Power module” page

It allows the display of the main electric values of the selected module. By operating the left Tab menu, it is possible to display the input, battery, bypass line and output electric values measured in the module.



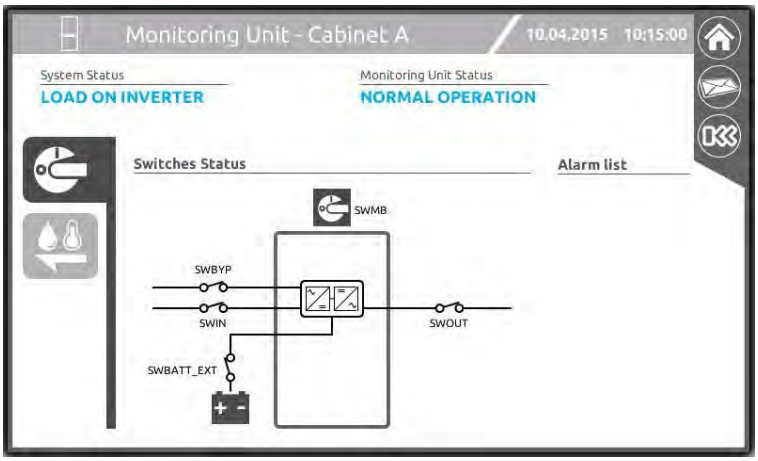



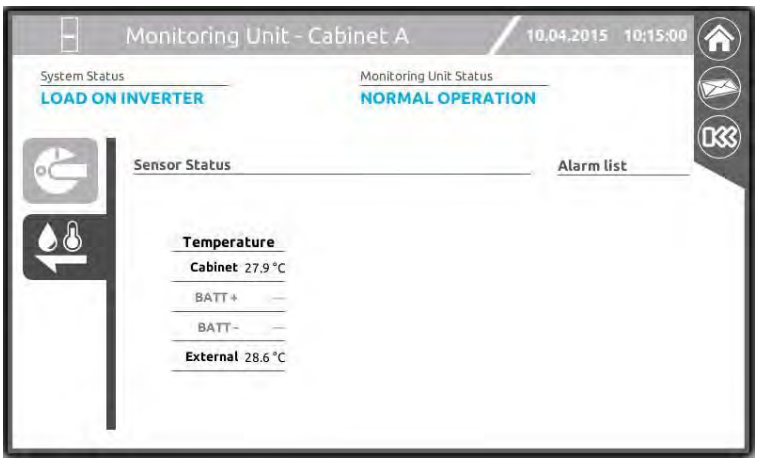



### “Monitoring unit” page

The Switches Status or the Sensor Status can be viewed in this page.

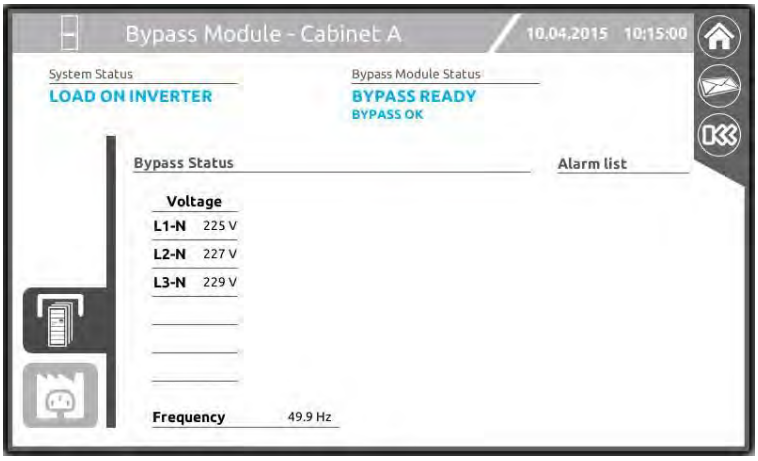
- SWBYP = Bypass Switch (external);
- SWIN = Input Switch (external);
- SWBATT = Battery Switch (external);
- SWOUT = Output Switch (external);
- SWMB = Manual Bypass Switch (external and internal).

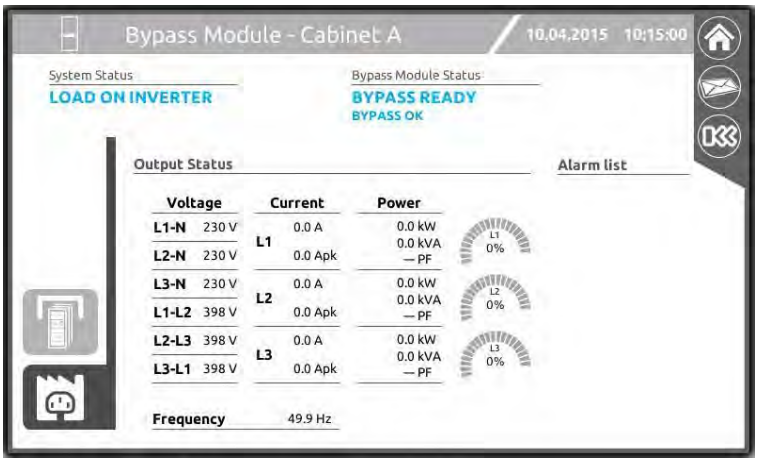


### “Bypass module” page

The frequency and voltage of each phase are displayed in the input values page.
The bypass voltages and currents are displayed in the output values page. Under inverter mode operation, bypass currents are always nil, while the voltages on the bypass output are visible in any case. On the other hand, during the normal bypass operation and in presence of a load, the bypass currents are other than zero.

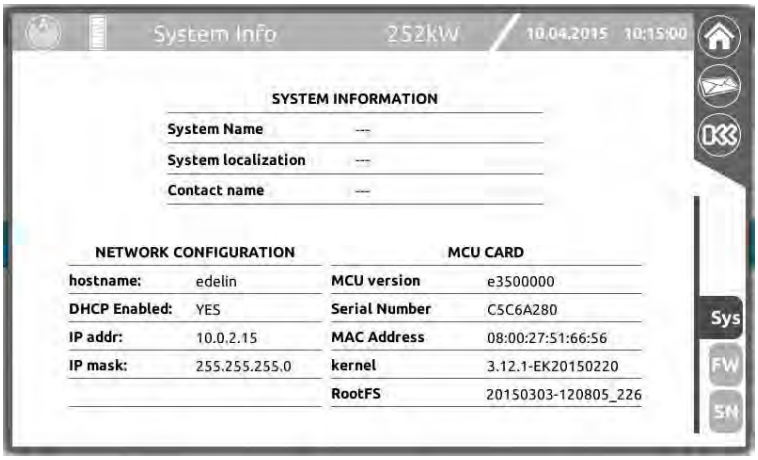


## Global system information

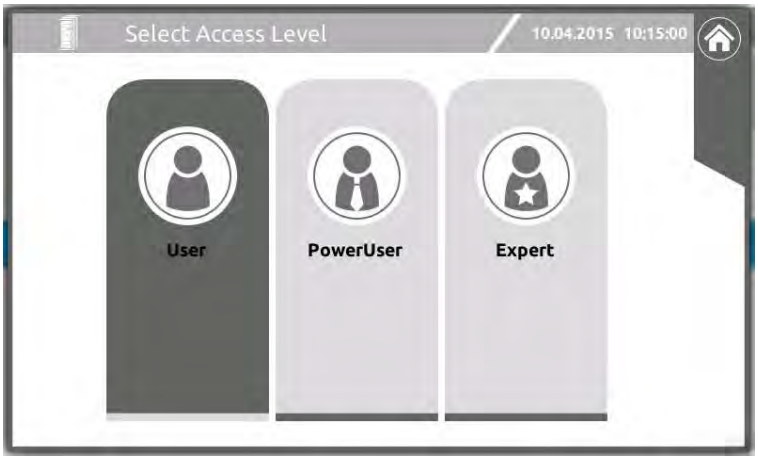
The following information can be displayed:

- Firmware version and network configuration (Sys)
- Firmware version of the modules (FW);
- Serial Number of the modules (SN).



## Access level selection

This page allows the selection of the privilege level for the access to the menus by the user. A safety password may be requested, based on the selected level.
Expand the drop-down menu in the Home page and touch the access level selection icon.




- The “User” level allows only basic monitoring and display actions.
- The “Power User” level allows commands (on/off, bypass switch or battery test) and part of the settings.
- The “Expert” level is reserved to the authorized service personnel.

NOTES:

1) Access as "Expert" user to configure the system.

2) The drop down menu in the Home page may change basing on the used access level.

## Commands

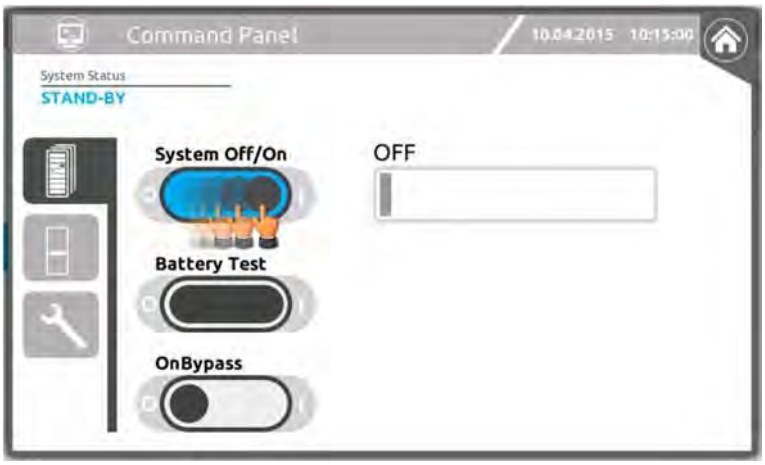
### Access to the command panel

The “Power User” access level is required for accessing the Command Panel.

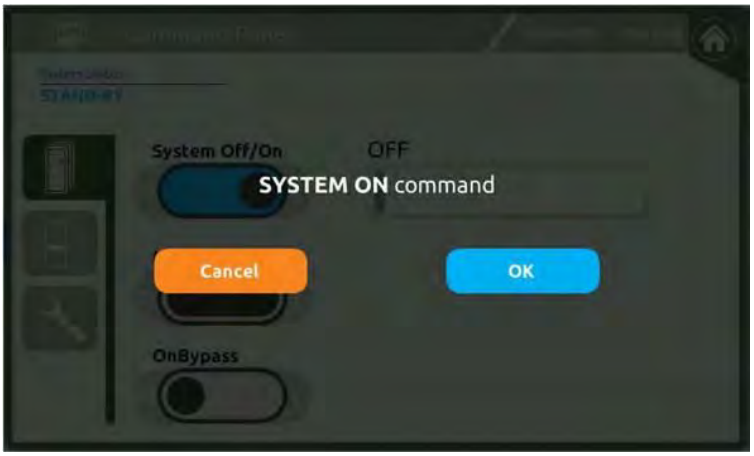
From this page is possible to give switch on/off commands for the system or for the individual module.
It is also possible to perform a Battery test and transfer the power cabinet to static bypass icon operation; the latter two actions are available only at system level.
Operate the sliding switch to execute a command. The progress bar shows the progress of the start-up/shut-down sequence.

### System off / On command

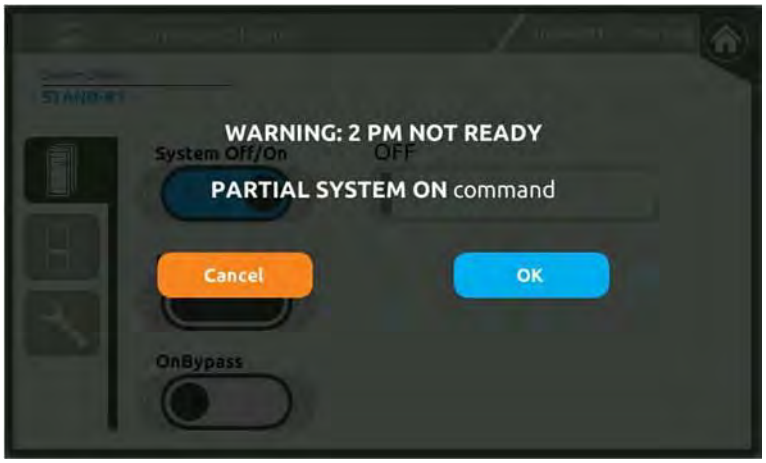
Operate the sliding switch from O to I to switch on the system.



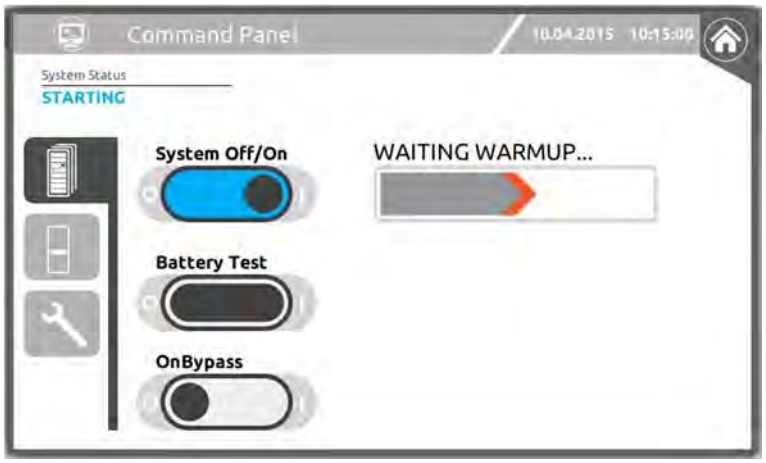

A confirmation of the action is requested for some of the commands.



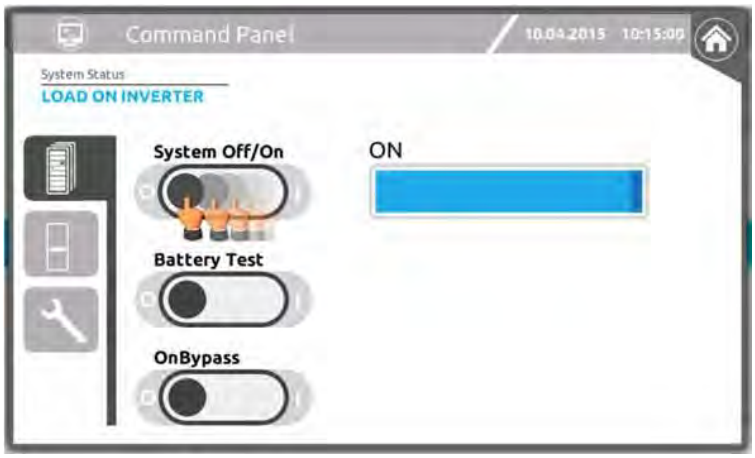
If one or more PMs are not ready, a warning message will be shown.




Progress bar during a system start-up sequence.

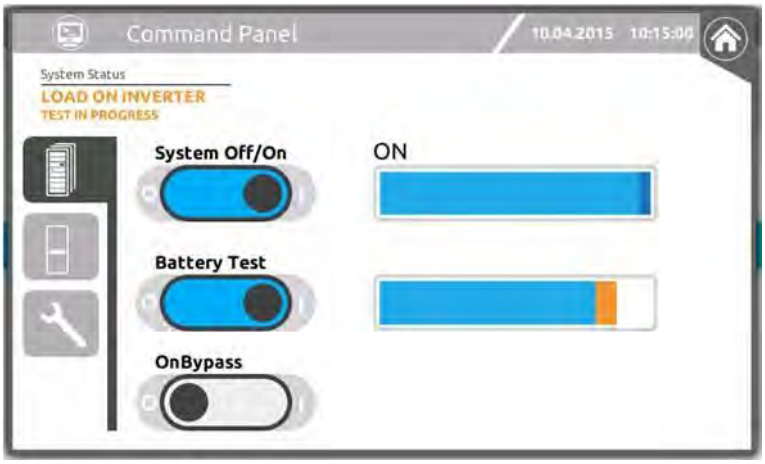



Operate the sliding switch from I to O to switch off the system.



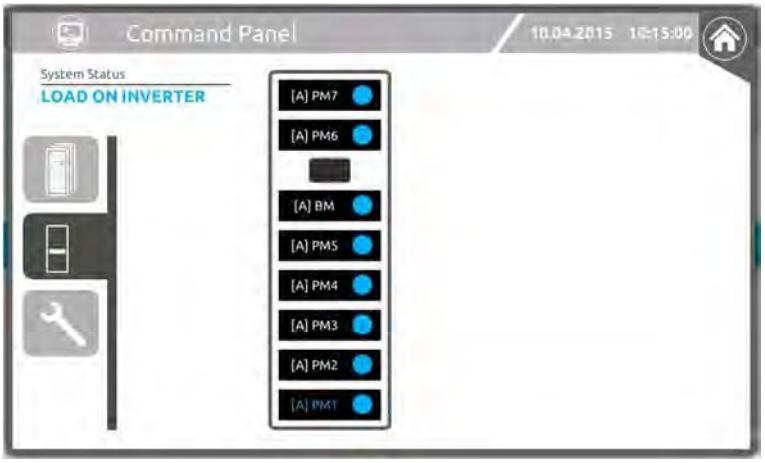
### Battery test command

Operate the sliding switch from O to I to execute the battery test. The progress bar shows the progress of the battery test.

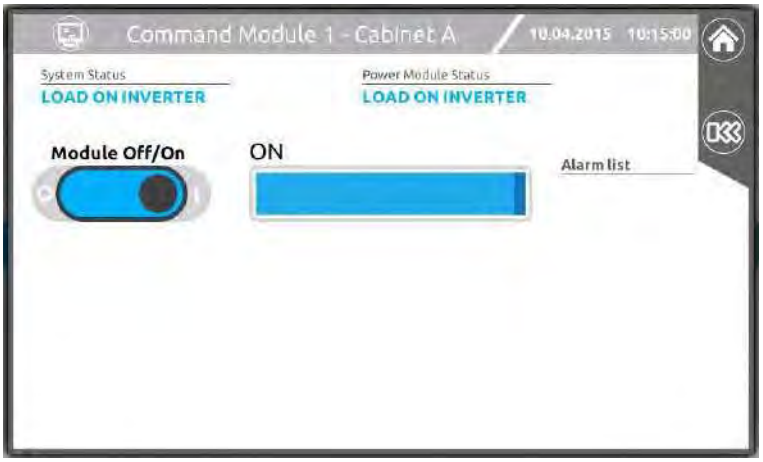



### Module Off / On command

Select the Power Module on which you want to operate.



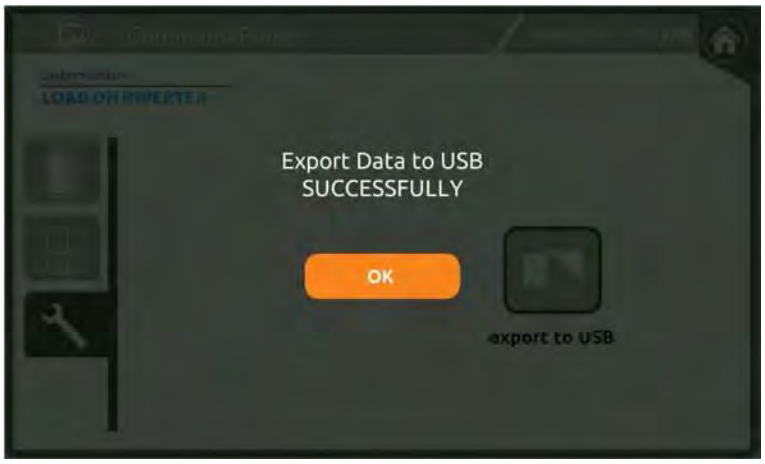

Operate the sliding switch from O to I or from I to O to switch on/off the single Power Module.



### Data export commands

From this page is possible to export system history log files to be analysed from service department.


Insert a USB memory key in the USB port on the side of the Main Communication Unit.
Touch the "Export service files to USB" icon to download files. Please note that the operation could take several minutes.




Wait until the download is complete before removing the USB memory key.

## Main setup page

The “Power User” access level is required for accessing the Main Setup.


Language configuration.

Date/hour, Country settings, system clock synchronization with a benchmark.

Planned operation scheduling.

E-mail service configuration.

Network settings.

General system settings (system name, etc.)

## Language configuration

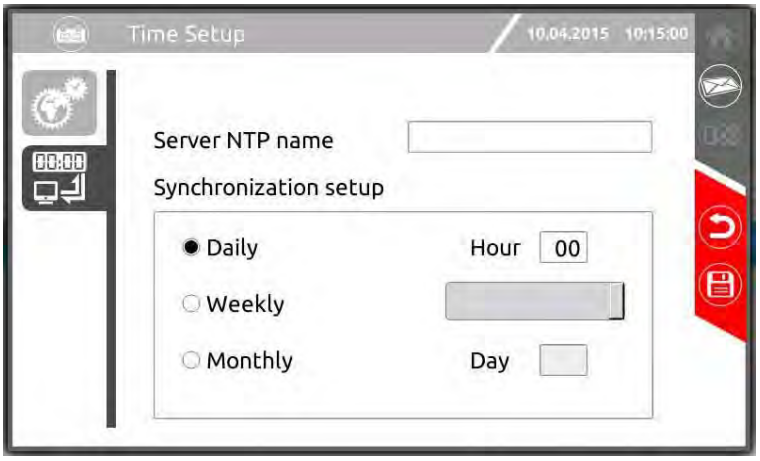
Enables the language configuration of the menus.


## System clock setting

These pages allows the user to configure the date, the hour and the time zone of the system.

### Clock synchronization settings

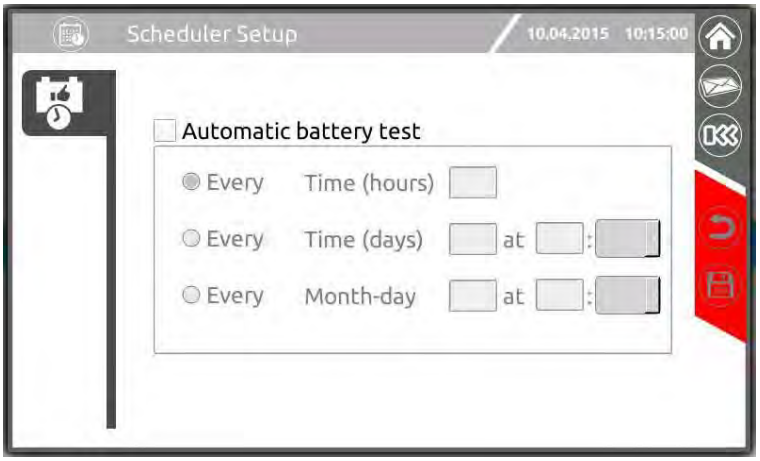
It's possible the system regularly synchronize the system clock with the clock of a server. Specify the name of the NTP server and the update frequency.




## Scheduled operation setup

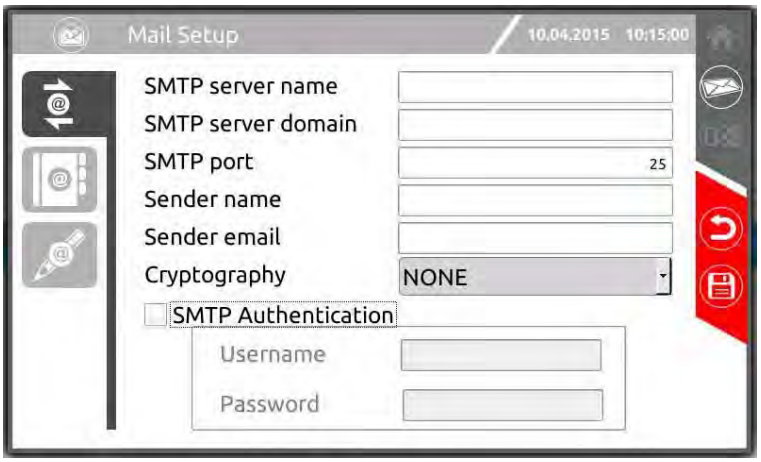
### Battery test scheduling

This page allows to configure the scheduling of when automatic battery tests are to be performed.



## E-mail configuration

These pages enable the configuration of the SMTP transfer protocol (server name, domain, port, name and e-mail address of the sender, cryptography level). To change the fields, just touch the related text boxes and type the data using the touch keyboard. The Tab menu on the left allows to move in the pages dedicated to the configuration of the e-mail services.




### E-mail address configuration

This page allows to manage a list of e-mail addresses to which a message related to the type of alarm will be sent.

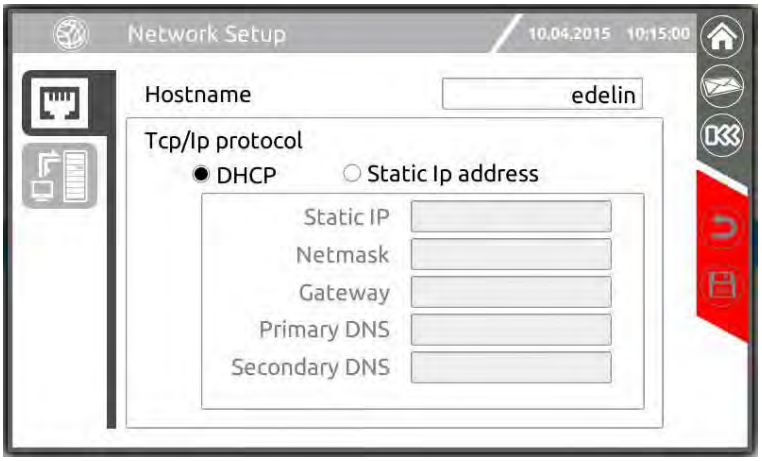
### Configuration of the details of the e-mail message

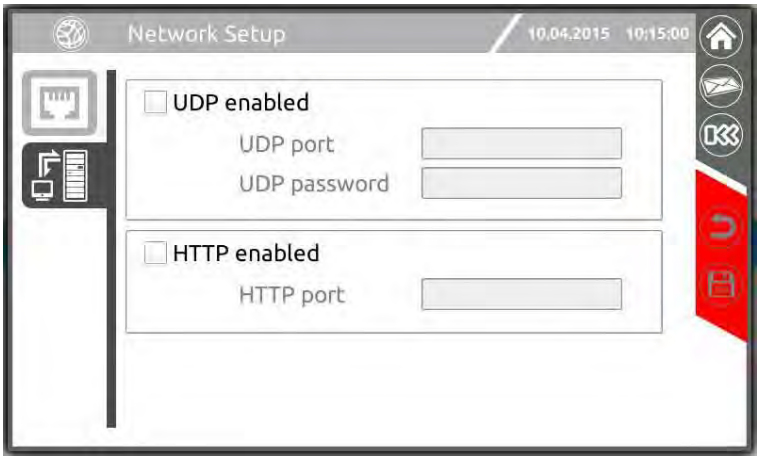
This page allows to configure a standard text which will be used as subject of the e-mail, a header and a footer.


## Network settings

These pages allows to set the network connection.

| | |
|---|---|
| Hostname | Is the system identification name |
| Tcp/Ip protocol | Allows to select the protocol settings |
| UDP, HTTP | Allows to set a password for the related ports. |

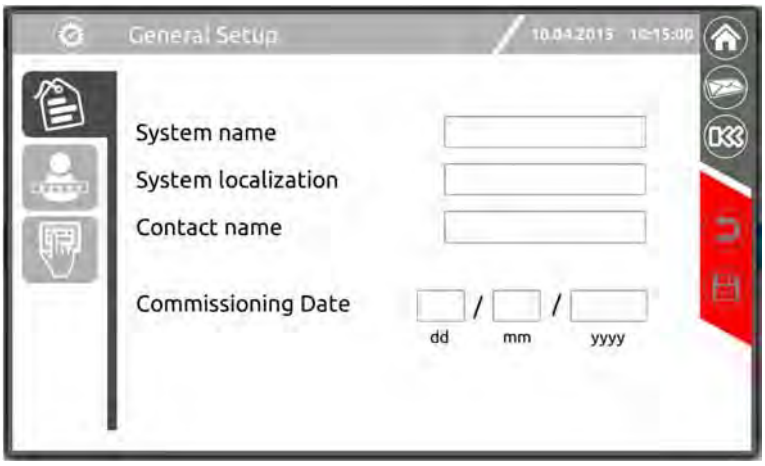


## General system settings

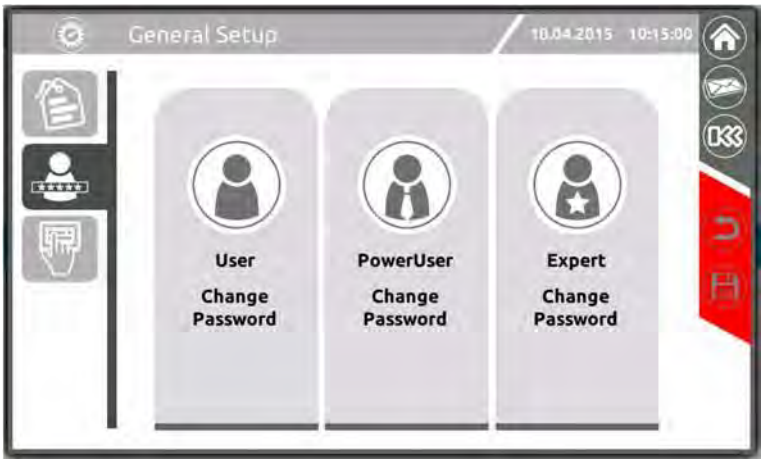
### System label

This page enables to set - in the specific text boxes - the system name, its location and the contact person.




### Password setting and change

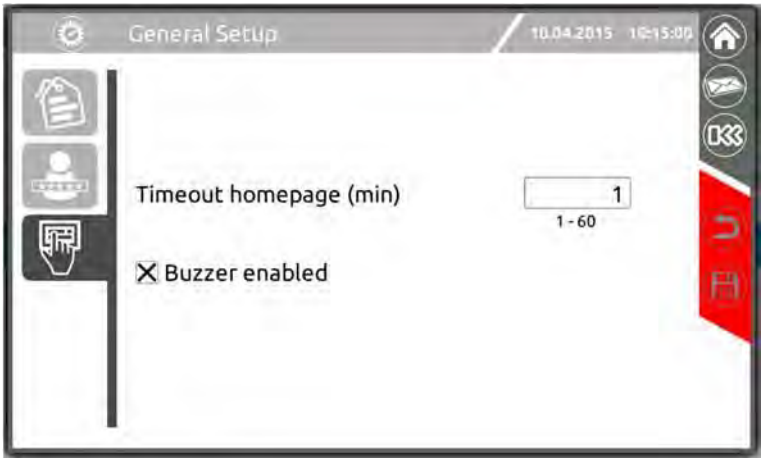
Touch the user icon matching the access level for which it is intended to set or change the password and type/change the password. It will be required to type the password twice.



### Display settings

This page allows to:

- define the inactivity period after which the Home page is displayed;
- activate the buzzer.



## Technical data table

| MODEL<br>Input | HIMOD HP - from 42 to 294 kW[1] | | |
|---|---|---|---|
| Voltage [V] | 380-400-415 Vac Three-Phase plus | | |
| Voltage tolerance [V] | neutral 240 to 480 [2] | | |
| Frequency tolerance | 40 to 72 | | |
| [Hz] Power factor | 1 | | |
| THDI [%] | < 2 | | |
| **Bypass** | | | |
| Cabinet type | Power Cabinet | PowerPlus Cabinet | |
| Nominal power [kW] | 252 | 126 | |
| Nominal voltage [V] | 380-400-415 Vac Three-Phase plus neutral | | |
| Voltage tolerance [V] | from 180 (adjustable 180-200) to 264 (adjustable 250-264) referring to Neutral | | |
| Nominal frequency [Hz] | 50 or 60 | | |
| Overload | 125% for 10 minutes; 150% for 1 minute | | |
| **Batteries** | | | |
| Layout | Modular type made up by Battery Unit or Free Standing Battery Box / Shelf | | |
| Battery Unit features | VRLA batteries lined up Constant voltage and current measuring<br>Battery status monitoring via HIMOD HP LCD display | | |
| **Output** | | | |
| Nominal voltage [V] | 380/400/415 Vac Three-Phase plus neutral | | |
| Nominal frequency [Hz] | 50 or 60 | | |
| Voltage stability [%] | ± 0,5 | | |
| Dynamic stability | EN62040-3 class performance 1 distorting load | | |
| Overload | 125% for 10 minutes; 150% for 1 minute | | |
| **Overall specification** | | | |
| Power Module nominal power [kW] | 42 | | |
| Output power factor | 1 | | |
| Cabinet type | Power Cabinet | PowerPlus | Battery Cabinet |
| Nominal Power [kW] | 294 | 126 | N.A |
| Parallelable (up to) | 4 | | 10 |
| Cabinet layout description | 7 x PM[3] | 3 x PM[3]<br>5 x Battery Shelves (20 x BU[4]) | 9 x Battery Shelves (36 x BU[4]) |
| Dimensions [WxDxH] | 600x1050x2002 | | |
| Weight [kg] (without PM[3]/BU[4]) | 300 | 340 | 280 |
| System Noise Level at 1 m [dBA±2] | < 68 | < 64 | N.A |
| Cabinet IP rating | IP20 finger proof (either with cabinet doors open or closed) | | |
| Cable input | Rear side either top or bottom | | |
| Colour | RAL 9005 | | |
| Standards | Safety: IEC EN62040-1 EMC: IEC EN 62040-2 Category C2 | | |
| Moving cabinet | Castors (any cabinet type is shipped without PM[3] and BU[4]) | | |

[1] Including Redundancy
[2] Conditions applied
[3] PM = Power Module (42 kW)
[4] BU = Battery Unit

NOTE: all performances quoted in a single row refer to any UPS system configuration from one to seven modules running in parallel unless specified differently.

# Service Contact

## Your direct line to us


**Worldwide Corporate Offices**

**Headquarter Germany**
Hansastrasse 8
D-91126 Schwabach
Tel: +49 9122 79889 0

Mail: info@alpha-outback-energy.com

**Eastern Europe**
ee@alpha-outback-energy.com

**Middle East**
me@alpha-outback-energy.com

**France and Benelux**
fbnl@alpha-outback-energy.com

**Spain**
spain@alpha-outback-energy.com

**Africa**
africa@alpha-outback-energy.com




For more information, please visit **www.alpha-outback-energy.com**