

UMDW UPS Manual

UMDW 25 kVA UPS

User Manual





User Manual

UMDW 25 kVA UPS

Language: English

Document: 10014156426

Revision: 00

Date: 01/2026

SUMMARY OF THE REVISIONS

The information below describes the revisions made to this manual.

Version	Revision	Description
-	R00	First edition

1 SAFETY INSTRUCTIONS	1-1
1.1 SAFETY WARNINGS IN THE MANUAL	1-1
1.2 SAFETY WARNINGS ON THE PRODUCT	1-1
1.3 PRELIMINARY RECOMMENDATIONS	1-2
2 GENERAL INFORMATION	2-1
2.1 ABOUT THIS MANUAL	2-1
2.2 TERMS AND DEFINITIONS USED IN THE MANUAL	2-1
3 PRODUCT OVERVIEW	3-1
3.1 ABOUT THE PRODUCT	3-1
3.2 OPERATING MODES	3-1
3.2.1 Normal Mode	3-2
3.2.2 Battery Mode	3-3
3.2.3 Automatic <i>Bypass</i> Mode	3-4
3.2.4 Manual <i>Bypass</i> Mode	3-5
3.2.5 Eco Mode	3-6
3.2.6 <i>OFF</i> Mode	3-7
3.2.7 Maintenance <i>Bypass</i> Mode	3-7
3.2.8 Battery Charger Mode	3-7
3.2.9 Emergency Mode	3-8
3.3 FRONT VIEW	3-9
3.4 INTERNAL VIEW	3-10
3.5 DESCRIPTION OF INTERNAL COMPONENTS	3-11
3.5.1 Management Module	3-11
3.5.2 <i>Bypass</i> Module	3-12
3.5.3 Power Module	3-13
3.5.4 HMI Module	3-15
4 RECEIVING AND STORING THE PRODUCT	4-1
4.1 TRANSPORTATION	4-1
4.2 HANDLING	4-1
4.3 UNPACKING	4-2
4.4 RECEIVING INSPECTION	4-3
5 INSTALLING AND CONNECTING	5-1
5.1 INSTALLATION ENVIRONMENT	5-1
5.2 MECHANICAL INSTALLATION	5-2
5.3 ELECTRICAL CONNECTIONS	5-2
5.3.1 Power Connections	5-3
5.3.2 Connecting the Emergency Power Off (EPO) Pushbutton	5-5
5.3.3 Connecting the External Maintenance Bypass	5-5
5.3.4 Installing and Connecting the Battery Temperature Sensor	5-6
5.3.5 Installing and Connecting the CMSW Sensor	5-6
5.3.6 Dry Contact Connections	5-7
5.3.7 Modbus Communication Connections	5-7
5.3.8 Ethernet Connection	5-7
5.3.9 <i>Rack</i> Parallel Operation Connections	5-8
5.3.9.1 Maximum Communication Cable Lengths Between Racks	5-9
5.3.9.2 Recommended Technical Standards	5-9
5.3.9.3 Connecting the Emergency Power Off Pushbutton for Parallel Operation	5-9
5.3.9.4 Connecting the External Maintenance <i>Bypass</i> for Parallel Operation	5-10
5.4 INSTALACIÓN MÓDULOS DE POTENCIA	5-11
5.5 INSTALLING THE ACCESSORY TO COMPLY WITH THE IP21 REQUIREMENTS	5-12
5.6 INSTALLING THE BACKFEED PROTECTION CONTACTOR	5-13

6 HMI - HUMAN-MACHINE INTERFACE	6-1
6.1 PRODUCT MEASUREMENTS MENU	6-1
6.1.1 Global Measurements (System)	6-2
6.1.2 <i>Bypass</i> Module Measurements	6-2
6.1.3 Power Module Measurements	6-3
6.2 SETTINGS MENU	6-4
6.2.1 Operating Mode Settings Screen	6-5
6.2.2 Module Operation Settings Screen	6-5
6.2.3 Product Parallel Operation Settings Screen	6-6
6.2.4 Product Output Settings Screen	6-7
6.2.5 <i>Bypass</i> Input Settings Screen	6-7
6.2.6 Battery Bank Settings Screen	6-8
6.2.7 General Settings Screen	6-9
6.2.8 Network Port Settings Screen	6-10
6.2.9 Modbus Communication Settings Screen	6-10
6.2.10 User Settings Screen	6-11
6.2.11 Accessories Settings Screen	6-12
6.2.12 Dry-Contact Output Settings Screen	6-12
6.3 MAINTENANCE MENU	6-14
6.3.1 SETUP WIZARD	6-15
6.4 SYSTEM NOTIFICATION MENUS	6-19
6.5 SYNOPTIC MENU	6-19
7 PRODUCT OPERATION	7-1
7.1 STARTING UP THE PRODUCT	7-1
7.1.1 Initial Procedures	7-1
7.1.2 Powering the Electronics	7-1
7.2 INITIAL SETTINGS	7-1
7.2.1 Date and Time Settings	7-1
7.2.2 Output and <i>Bypass</i> Settings	7-1
7.2.3 Battery Bank Settings	7-2
7.2.4 Parallel Operation Settings	7-2
7.2.5 Power Module Selection Settings	7-4
7.3 UMDW OPERATION	7-4
7.4 MODULE INDICATIONS	7-4
7.4.1 Control Module	7-4
7.4.2 Power Supply and Protection Module	7-4
7.4.3 <i>Bypass</i> Module	7-5
7.4.4 Power Module	7-5
7.5 HMI INDICATIONS	7-5
8 PREVENTIVE MAINTENANCE	8-1
8.1 <i>HOTSWAP</i> REPLACEMENT – POWER MODULE	8-1
8.2 <i>HOTSWAP</i> REPLACEMENT – <i>BYPASS</i> MODULE	8-2
8.3 <i>HOTSWAP</i> REPLACEMENT – CONTROL MODULE	8-3
8.4 <i>HOTSWAP</i> REPLACEMENT – POWER SUPPLY AND PROTECTION MODULE	8-4
8.5 <i>HOTSWAP</i> REPLACEMENT – DRY-CONTACT MODULE	8-5
8.6 <i>FIRMWARE</i> UPDATE PROCEDURE	8-6
8.7 DISCONNECTING THE BATTERY FOR MAINTENANCE	8-6
9 PRODUCT SPECIFICATIONS	9-1
9.1 BASIC PRODUCT INFORMATION	9-1
9.2 PRODUCT RECTIFIER INFORMATION	9-1
9.3 PRODUCT INVERTER INFORMATION	9-2
9.4 PRODUCT BATTERY BANK INFORMATION	9-2
9.5 PRODUCT <i>BYPASS</i> INFORMATION	9-2
9.6 ADDITIONAL INFORMATION	9-3

1 SAFETY INSTRUCTIONS

This manual contains the information necessary for the correct use of the UMDW (WEG Modular UPS). The following instructions are extremely important for the good performance and operation of the UMDW and must be strictly followed during the system installation, maintenance, and operation. Failure to comply with the product instructions may cause operating accidents and damages to the environment, to the product and to the equipment connected to it, in addition to voiding the warranty.

After reading the user's manual, keep it in a place of easy access for the product users.

1.1 SAFETY WARNINGS IN THE MANUAL

The following safety warnings are used in this manual:

**DANGER!**

Failure to comply with the procedures recommended in this warning may lead to death, serious injuries and considerable material damages.

**ATTENTION!**

Failure to comply with the procedures recommended in this warning may cause material damages

**NOTE!**

The text aims at providing important information for the full understanding and proper operation of the product.

1.2 SAFETY WARNINGS ON THE PRODUCT

The following symbols are attached to the product as safety warnings:



High voltages are present.



Components sensitive to electrostatic discharges.

Do not touch them.



Mandatory connection to the protective ground (PE).



Connection of the shield to the ground.



Hot surface.

1.3 PRELIMINARY RECOMMENDATIONS



DANGER!

- Make sure the power is disconnected before installation. (Otherwise, electric shock may cause serious injury or death).
- Always work with the equipment disconnected from the power supply. (Otherwise, electric shocks or short circuits may occur.)
- When performing any tests, maintenance or repairs, first disconnect the power supply and then disassemble the equipment.
- Do not install the product, unless you hold a national certification and have received relevant information on the product. (Otherwise, electric shocks or short circuits may occur.)



ATTENTION!

- Before installation, make sure the used voltage matches the rated voltage.
- When you are installing or testing this product, check the ratings and specifications.
- Do not disassemble the product when it is energized or running.
- Dispose of the product as industrial waste.



NOTE!

Read the entire manual before installing or operating this Digital Rectifier.



DANGER!

When in operation, electric energy systems, such as transformers, converters, motors and cables, generate electromagnetic fields (EMF). Therefore, there is risk for people with pacemakers or implants who stay near these systems. Thus, such people must stay at least 2 meters away from this kind of equipment.



ATTENTION!

Electronic boards have components sensitive to electrostatic discharges. Do not touch the components or connectors directly. If necessary, first touch the grounded metallic frame or wear a suitable grounding strap.

2 GENERAL INFORMATION

The UMDW (WEG Modular UPS) has been designed to provide a highly reliable and efficient solution, using double-conversion online topology and a modular concept.

2.1 ABOUT THIS MANUAL

This manual provides important information related to the installation, operation, and maintenance of the product. It includes technical characteristics, operating features, and the main instructions required for proper use. This manual is available for download on the WEG website: [NOBREAK UMDW 25 kVA](#).

2.2 TERMS AND DEFINITIONS USED IN THE MANUAL

Amp, A: ampere.

DC Bus (DC Link): direct current circuit obtained at the output of the rectifier with a unity power factor, which supplies power to the inverter and the battery charger converter.

Bypass: refers to a mechanism that allows power to flow directly from the grid to the output, bypassing the internal components of the UPS (such as the inverter).

°C: degrees Celsius.

CA: alternate current.

DC: direct current.

Pre-Charge Circuit: charges the DC bus capacitors with limited current.

cm: centimeter.

DC/DC Converter: a converter that interfaces between the battery bank and the product DC link.

Heatsink: a metal component designed to dissipate the heat generated by power semiconductors.

IHM: Human-Machine Interface, device that allows controlling, viewing and changing the rectifier parameters. The UMDW HMI features control keys, navigation keys, and a graphic LCD screen.

Switching Frequency: switching frequency of semiconductor switches, normally given in kHz.

Hz: hertz.

kg: kilogram = 1000 grams.

kHz: kilohertz = 1000 Hertz.

m: metro.

mA: milliampere = 0.001 Ampere.

min: minute.

mm: millimeter.

ms: millisecond = 0.001 seconds.

SiC MOSFET: a Silicon Carbide (SiC) Metal-Oxide-Semiconductor Field-Effect Transistor (MOSFET) is a type of insulated-gate field-effect transistor built using the semiconductor material silicon carbide (SiC) instead of traditional silicon (Si). This transition to SiC technology enables the MOSFET to operate with higher efficiency, lower power losses, and greater voltage blocking capability, making it ideal for high-power and high-frequency applications.

GENERAL INFORMATION

NTC: resistor whose resistance value in ohms decreases proportionally to the temperature drop; used as temperature sensor on power modules.

Ω : ohms.

PE: protective Earth.

PFC: Power Factor Correction. It refers to the rectifier circuit responsible for correcting the input power factor of the product.

PTC: resistor whose resistance value in ohms increases proportionally with the temperature.

PWM: Pulse Width Modulation.

rms: Root Mean Square.

s: second.

USB: universal serial bus; serial communication protocol conceived to operate according to the plug-and-play concept.

UPS: Uninterruptible Power Supply. It is a device that provides electrical power to electronic equipment when there is an interruption in the power supply from the grid.

V: volts.

3 PRODUCT OVERVIEW

3.1 ABOUT THE PRODUCT

The UMDW (WEG Modular UPS) features a modular design that delivers high efficiency and availability, with a scalable structure composed of 25 kVA/kW power modules (unity power factor) and three frames — 75, 125, and 200 kVA/kW — allowing vertical expansion of up to eight modules in the largest cabinet.

The UMDW power modules are designed for hotswap replacement, allowing for quick and safe maintenance and easy capacity expansion, resulting in a versatile and highly reliable structure, even during preventive or corrective maintenance procedures. The control and bypass modules follow the same concept, providing a granular and flexible solution ideally suited for mission-critical environments.

For higher power demands, the UMDW allows parallel operation, achieving a maximum system capacity of 1.6 MW.

3.2 OPERATING MODES

The main concept behind a modular UPS is the distribution of the electrical load among several modules, allowing each one to operate independently while contributing to the system's total power supply. This ensures optimized performance and balanced power delivery to meet energy requirements efficiently.

One of the key features of modular UPS systems is the ability to operate in redundant mode. If a failure occurs in one of the modules, the redundant modules continue operating normally, sustaining the load without interruption. This redundancy is especially valuable in critical applications, where power continuity is essential. In addition to preventing system downtime due to a single-module failure, redundancy also significantly increases overall system reliability.

3.2.1 Normal Mode

In the Normal Mode, the UPS operates with double-conversion technology. The rectifier converts AC power to DC, supplying the system DC link. Then, the inverter converts DC energy back into AC output, as shown in Figure 3.1 on page 3-2. Simultaneously, the rectifier charges the batteries through the charger. The two conversion stages ensure precise output voltage regulation and superior power quality, protecting the load from disturbances such as input harmonics, faults, and voltage transients.

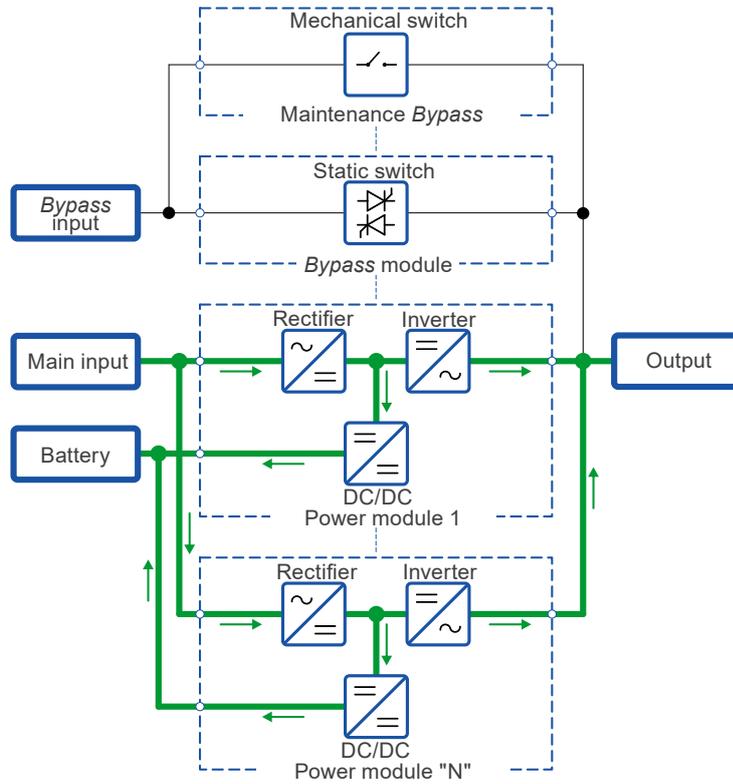


Figure 3.1: Power flow in normal mode

3.2.2 Battery Mode

When a mains failure or an abnormal input voltage occurs, the system transfers to the Battery Mode. In this mode, the DC link is powered by the battery bank through the DC/DC converter, while the inverter continues to regulate the output voltage and supply the load, as shown in Figure 3.1 on page 3-2.

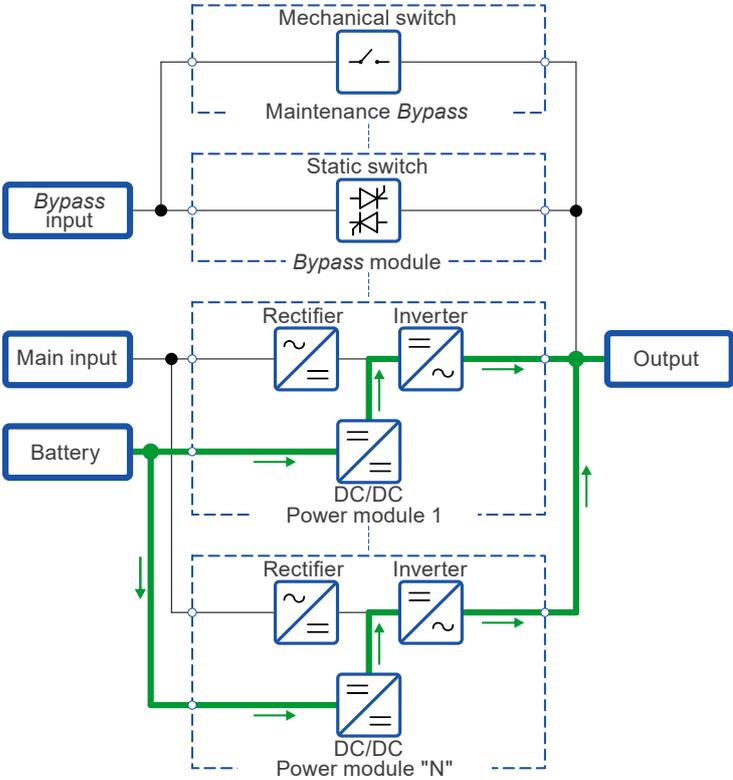


Figure 3.2: Power flow in the Battery Mode

3.2.3 Automatic Bypass Mode

In the Automatic *Bypass* Mode, the UPS output is powered through the *bypass* input and the static *bypass* switch, as shown in [Figure 3.3 on page 3-4](#). This operating mode is triggered by the internal protection system of the UMDW to ensure self-protection and load protection, allowing an automatic, uninterrupted transfer in case of failure or overload. The UPS can only operate in this mode if the *bypass* voltage and frequency remain within configured limits.

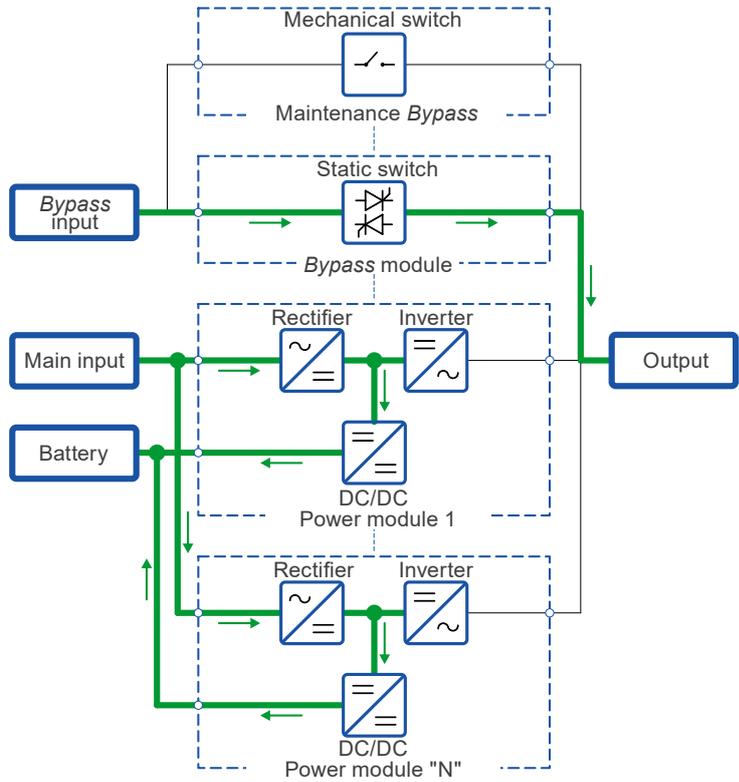


Figure 3.3: Power flow in the Automatic Bypass Mode

3.2.4 Manual Bypass Mode

In the Normal Mode, the UPS operates with double-conversion technology. The rectifier converts AC power to DC, supplying the system DC link. Then, the inverter converts DC energy back into AC output, as shown in Figure 3.1 on page 3-2. Simultaneously, the rectifier charges the batteries through the charger. The two conversion stages ensure precise output voltage regulation and superior power quality, protecting the load from disturbances such as input harmonics, faults, and voltage transients. This mode can be activated either manually by the user or automatically after three consecutive overloads in normal mode.

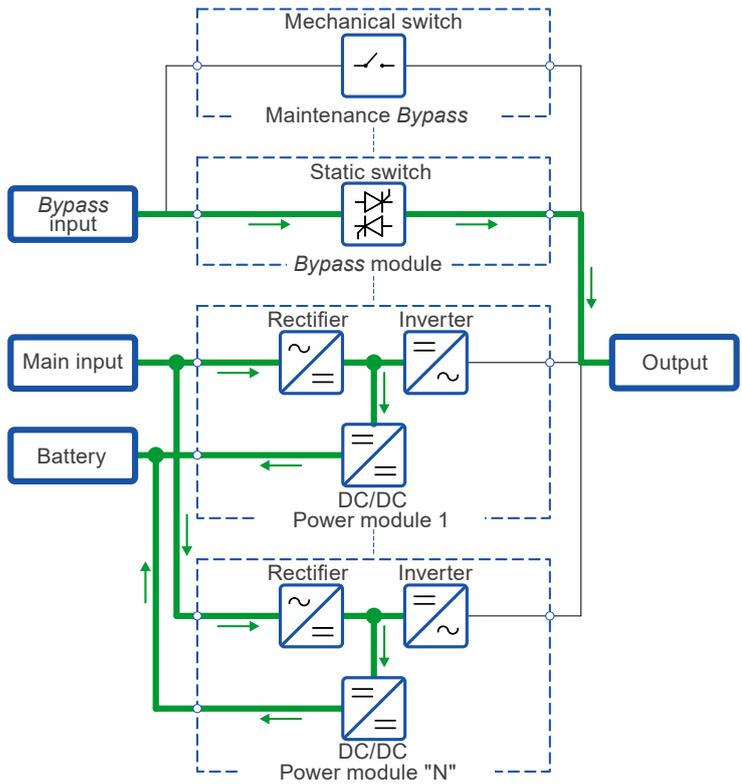


Figure 3.4: Power flow in the Manual Bypass Mode

3.2.5 Eco Mode

The ECO Mode is an energy-saving operating mode that can be configured through the UPS user interface. When the bypass input voltage and frequency are within acceptable ranges, the UPS operates in the Bypass Mode, and the inverter remains on standby. If the bypass voltage goes outside the ECO range, the system automatically transfers back to inverter mode. In both modes, the rectifier remains active, continuously charging the batteries. The ECO Mode offers high operating efficiency, and the energy flow is shown in [Figure 3.5 on page 3-6](#).

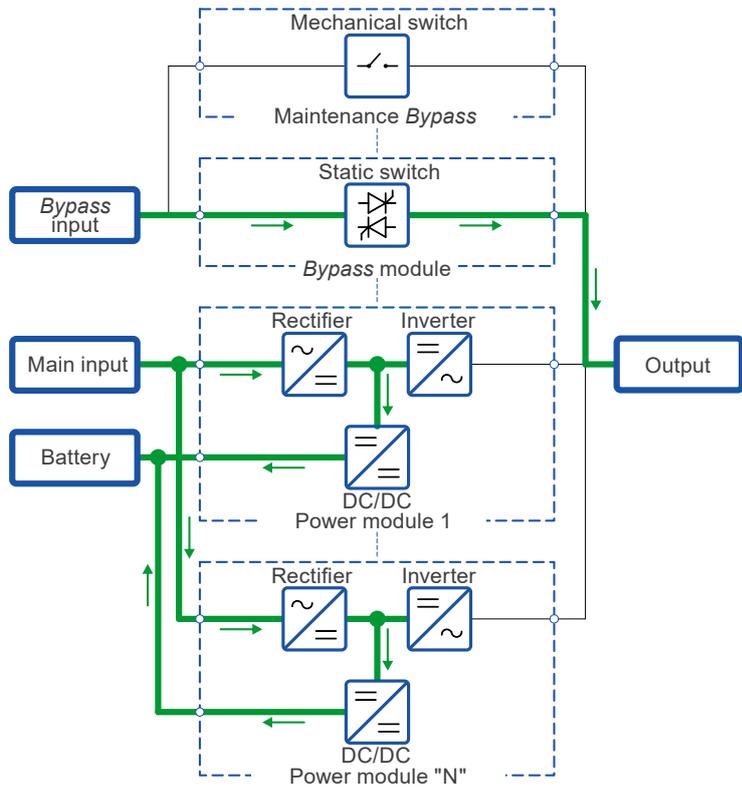


Figure 3.5: Power flow in the ECO Mode

3.2.6 OFF Mode

In the *OFF Mode*, the UPS is powered through the static *bypass switch*, keeping all converters completely shut down, as shown in [Figure 3.6 on page 3-7](#). The UPS remains powered by the *bypass input* as long as its voltage and frequency are within configured limits. In this mode, all power module converters remain *off*.

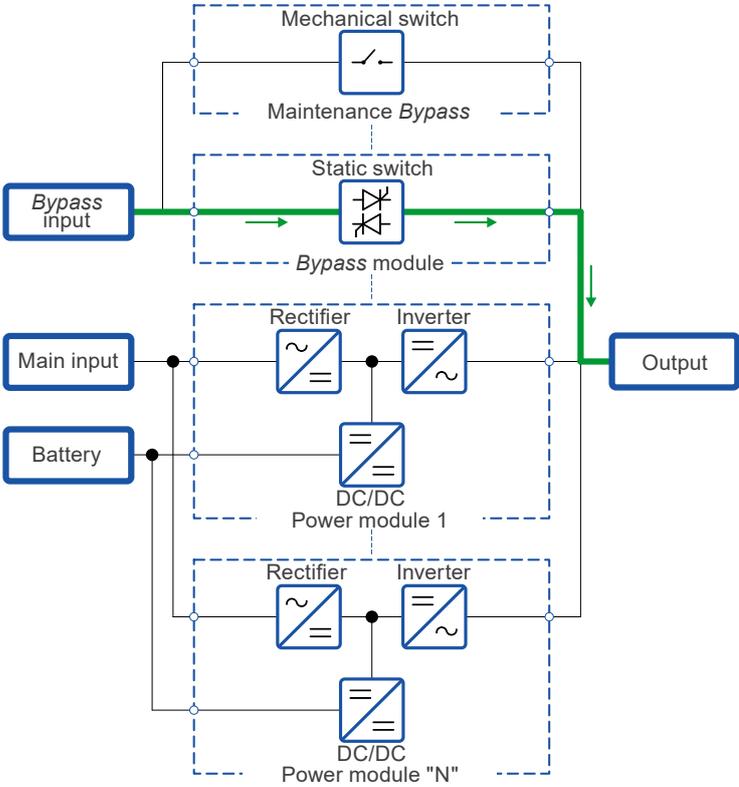


Figure 3.6: Power flow in the OFF Mode

3.2.7 Maintenance Bypass Mode

In the *Maintenance Bypass Mode*, the UPS output is powered by the mechanical *bypass switch*. In this condition, the output is fed directly from the *bypass input*, with the converters and static *bypass switch* deactivated. The energy flow is shown in [Figure 3.7 on page 3-8](#).

3.2.8 Battery Charger Mode

The battery charger mode is the operating mode where the product's output is not powered, and only the battery is charged through the AC/DC converter and the DC/DC Converter, as shown in [Figure 3.8 on page 3-8](#).

3.2.9 Emergency Mode

The Emergency Mode is activated by the EPO (*Emergency Power OFF*) function, which is triggered externally through an auxiliary contact (see [Item 5.3.2 Connecting the Emergency Power Off \(EPO\) Pushbutton on page 5-5](#)). In this mode, the UPS is completely shut down.

To return to normal operation, user intervention is required.

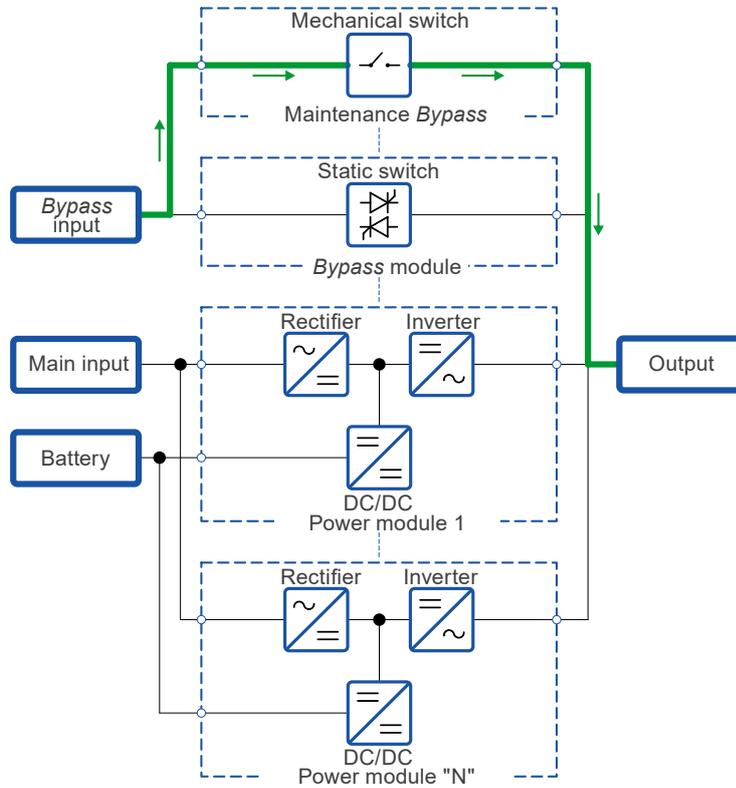


Figure 3.7: Maintenance bypass mode power flow

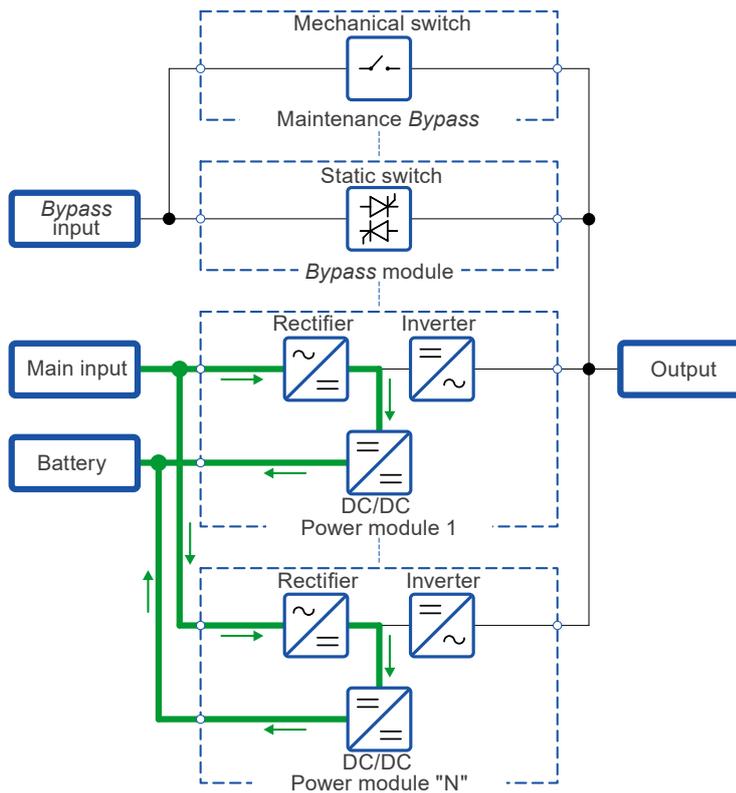


Figure 3.8: Power flow in the Battery Charger Mode

3.3 FRONT VIEW



Figure 3.9: Front view of the product showing dimensions and latch details

3.4 INTERNAL VIEW

Inside the product, you will find the slots for the power modules, *bypass* module, management module (which includes the dry contact module, control module, power supply and protection module), maintenance switch, and protective barrier. The position of the modules on the panel depends on the rated power of the purchased unit. [Figure 3.10 on page 3-10](#) provides a detailed view of the internal components of a 200 kVA unit. The numbered components are listed below:

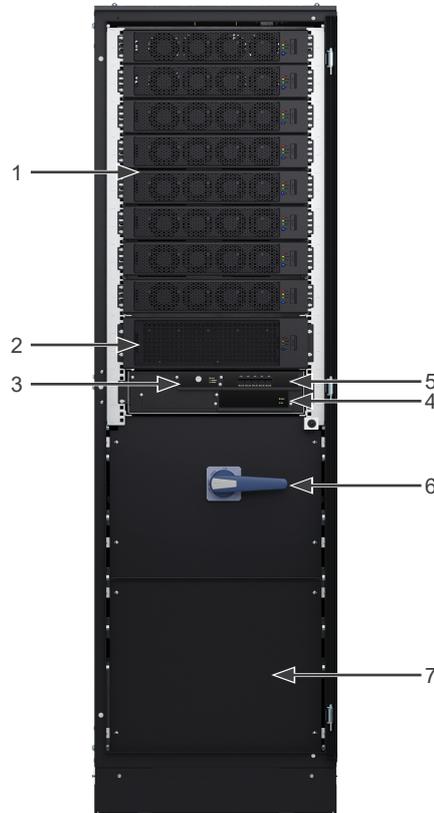


Figure 3.10: Internal view of the 200 kVA panel Frame III

1. Slots for the power modules.
2. *Bypass* module.
3. Control module.
4. Power supply and protection module.
5. Dry contact module.
6. Maintenance *bypass* switch.
7. Protective plate for the power cable connections.

3.5 DESCRIPTION OF INTERNAL COMPONENTS

3.5.1 Management Module

The management module is composed of the control module, dry contact module, and power supply and protection module. Additionally, there are two redundant slots available for adding an extra control module, and a power supply and protection module.

The control module includes three *status* LED indicators and a locking mechanism for module replacement. The explanation of indication is provided in [Item 7.4.1 Control Module on page 7-4](#), and the hotswap replacement procedure is described in [Section 8.3 HOTSWAP REPLACEMENT – CONTROL MODULE on page 8-3](#).

The power supply and protection module includes two *status* LED indicators showing the module’s operating condition. Details on the LED indicators are presented in [Item 7.4.2 Power Supply and Protection Module on page 7-4](#), and the *hotswap* replacement procedure is shown in [Section 8.4 HOTSWAP REPLACEMENT – POWER SUPPLY AND PROTECTION MODULE on page 8-4](#).

The dry contact module provides five configurable (NO or NC) *status* outputs, which indicate product *status* according to application requirements. The configuration procedure for these contacts is described in [Item 6.2.12 Dry-Contact Output Settings Screen on page 6-12](#). The button on this module is used for *DC Start* (cold start) and *ON/OFF* functions.

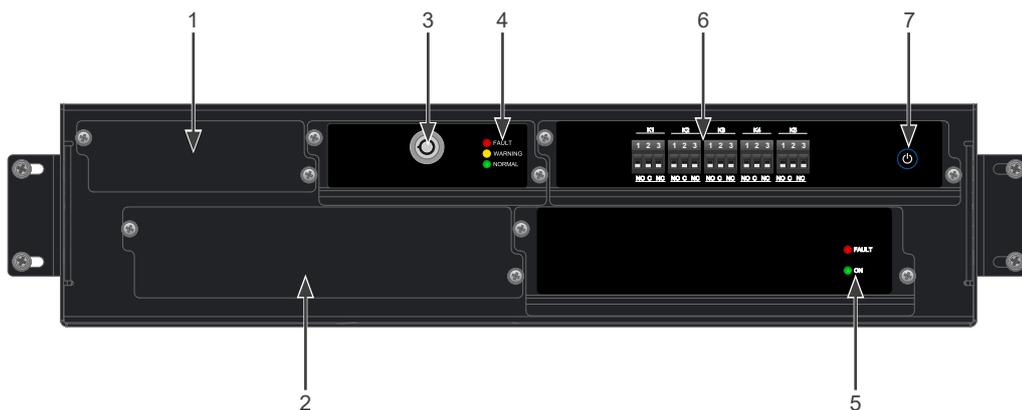


Figure 3.11: Management module

1. Slot for the redundant control module.
2. Slot for the redundant power supply and protection module.
3. Hotswap safety latch for the control module.
4. Status LED indicators of the control module.
5. Status LED indicators of the protection and power supply module.
6. Dry contact outputs.
7. DC start and ON/OFF pushbutton.

3.5.2 Bypass Module

The *bypass* module houses the static *bypass* switch components. It is available in three frames: 75 kVA, 125 kVA, and 200 kVA. On the external part of the module, there is a *hotswap* latch, which provides a feedback signal during module removal. The module also features four LED indicators (see [Item 7.4.3 Bypass Module on page 7-5](#)) and a mechanical safety latch that locks the module in place to prevent accidental drops during extraction. The *hotswap* replacement procedure is described in [Section 8.2 HOTSWAP REPLACEMENT – BYPASS MODULE on page 8-2](#).

Table 3.1: Bypass module information

Item	Specification
Dimensions (height x width x depth)	133 mm [5.23 pol] (3U) x 444 mm [17.48 pol] x 606 mm [23.85 pol]
Weight	18 Kg
Hotswap	Yes



Figure 3.12: Bypass module

1. Hotswap latch.
2. LED indicators.
3. Safety latch.

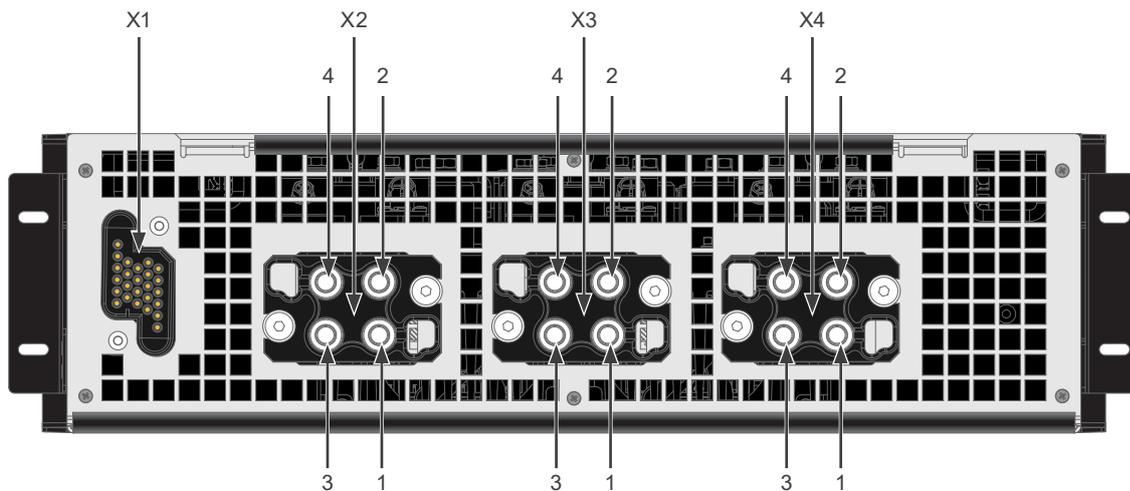


Figure 3.13: Bypass module connections

Table 3.2: Table of connector signals for the bypass module Frame I

X2		X3		X4	
Pin	Signal	Pin	Signal	Pin	Signal
Pin 1	Empty	Pin 1	Empty	Pin 1	Empty
Pin 2	Phase R output	Pin 2	Phase S output	Pin 2	Phase T output
Pin 3	Empty	Pin 3	Empty	Pin 3	Empty
Pin 4	Phase R Byp. input	Pin 4	Phase S Byp. input	Pin 4	Phase T Byp. input

Table 3.3: Table of connector signals for the bypass module Frame II and III

X2		X3		X4	
Pin	Signal	Pin	Signal	Pin	Signal
Pin 1	Phase R output	Pin 1	Phase S output	Pin 1	Phase T output
Pin 2	Phase R output	Pin 2	Phase S output	Pin 2	Phase T output
Pin 3	Phase R Byp. input	Pin 3	Phase S Byp. input	Pin 3	Phase T Byp. input
Pin 4	Phase R Byp. input	Pin 4	Phase S Byp. input	Pin 4	Phase T Byp. input

3.5.3 Power Module

Each 25 kVA power module consists of a power factor correction (PFC) rectifier, an inverter, and a DC/DC converter. The front panel includes a *hotswap* latch that generates the feedback signal for module removal, four status LED indicators (see [Item 7.4.4 Power Module on page 7-5](#)), and a mechanical safety latch. The hotswap replacement procedure for this module is provided in [Section 8.1 HOTSWAP REPLACEMENT – POWER MODULE on page 8-1](#).



Figure 3.14: Power module

- 1. Hotswap latch.
- 2. LED indicators.
- 3. Safety latch.

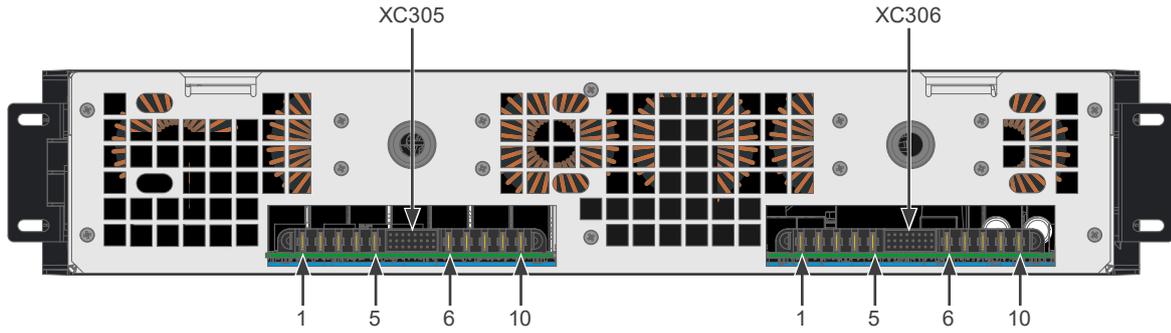


Figure 3.15: Power module connections

Table 3.4: Table of connector signals for the power module

XC305		XC306	
Pin	Signal	Pin	Signal
Pin 1	Ground	Pin 1	Ground
Pin 2	Phase R input	Pin 2	Empty
Pin 3	Phase S input	Pin 3	Battery negative
Pin 4	Empty	Pin 4	Battery negative
Pin 5	Phase T input	Pin 5	Neutral
Pin 6	Neutral	Pin 6	Neutral
Pin 7	Neutral	Pin 7	Neutral
Pin 8	Battery positive	Pin 8	Phase R output
Pin 9	Battery positive	Pin 9	Phase S output
Pin 10	Ground	Pin 10	Phase T output

Table 3.5: Power module information

Item	Specification
Dimensions (height x width x depth)	86 mm (2U) [3.38] x 444 mm [17.48] x 642 mm [25.27]
Weight	25 Kg
Hotswap	Yes

3.5.4 HMI Module

The HMI module features a 7-inch *touchscreen* display. This module includes an Ethernet connector available to the user, as well as a USB Type-A port (for data collection and firmware updates), and a USB Type-C connector.



Figure 3.16: HMI module

- 1. Touchscreen display.
- 2. Network connector.
- 3. USB Type-A connector.
- 4. USB Type-C connector.

4 RECEIVING AND STORING THE PRODUCT

4.1 TRANSPORTATION

The UMDW equipment (cabinet and modules) is factory-prepared for land transportation on paved roads. To prevent possible damage during transport, the following points must be observed: secure the product properly, use tie-down devices that prevent movement of the load without posing any risk to the equipment structure, use transportation means that offer protection against adverse weather conditions, and employ suitable devices for both horizontal and vertical handling (e.g., pallet jacks, forklifts, etc.).

4.2 HANDLING

All the panel doors must be locked during shipment. The shipment units must be loaded and transported in the vertical position only. The cabinet must not be transported with the power modules inserted.

Lifting of the cabinet must be performed using a forklift or another appropriate device that will not damage the panel structure.

Always follow the orientation markings on the packaging to ensure proper positioning. Vertical movement must be smooth and shock-free to avoid damage to internal components or doors, as specified in the handling procedure affixed to the exterior of the panels.



ATTENTION!

The product must be transported without the power modules inserted in the cabinet to ensure the integrity of the product's hot-swap connections.

4.3 UNPACKING

Unpacking must be carried out with the cabinets placed on the floor and using appropriate tools. Remove the crate, loosen the screws and doors, and remove all plastic and cardboard protective materials. Take care not to damage the panels and/or any equipment mounted on the doors during unpacking.

To remove the product from the pallet, follow the steps shown in [Figure 4.1 on page 4-2](#):

1. Remove the indicated M8 screws.
2. Remove the panel-to-pallet fastening assembly.
3. Remove the transport plate.
4. Position the pallet jack under the pallet opening and lift the product. The pallet jack used must provide a lifting height of at least 190 mm [7.48 pol] and have a maximum fork spacing of 540 mm [21.26 pol].
5. Remove the pallet.

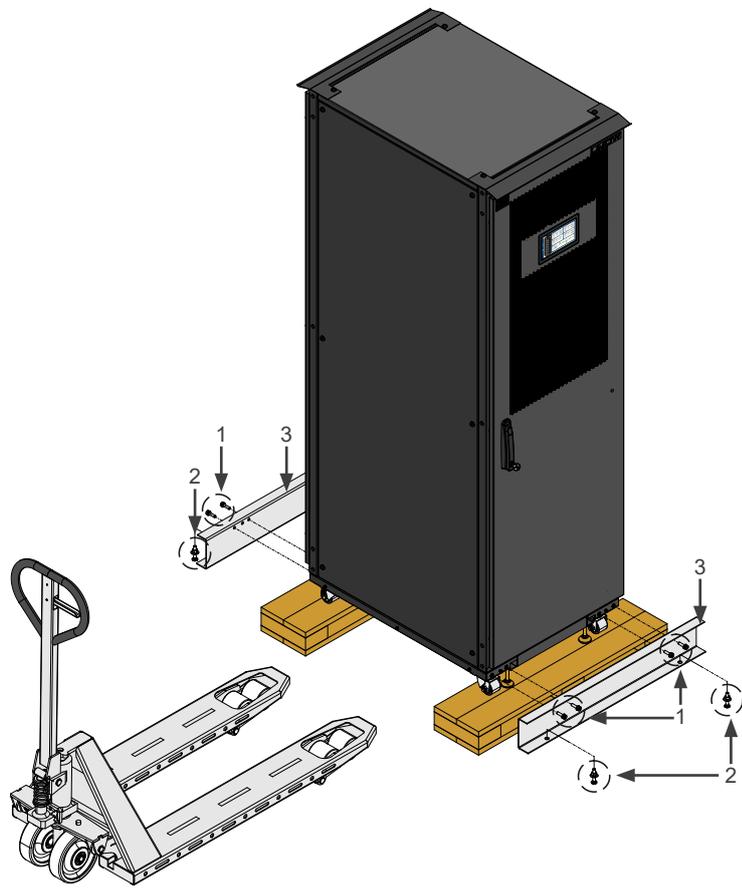


Figure 4.1: Pallet removal steps

4.4 RECEIVING INSPECTION

When opening the package, visually check for signs of tampering or damage that may have occurred during transportation. If any issue is detected, contact the carrier immediately. The product should include the following items:

1. UMDW cabinet.
2. Printed user guide.
3. Printed electrical design documentation.
4. 2 x roof accessory pieces for IP21 compliance.
5. 2 x pairs of base finishing pieces.
6. 1 x door latch key.
7. 2 x management module lock keys.
8. 10 x M4 x 14 mm [0.55 pol] washer-head screws for base finishing installation.
9. 5 x 3-pin plug-in connectors for dry contacts.

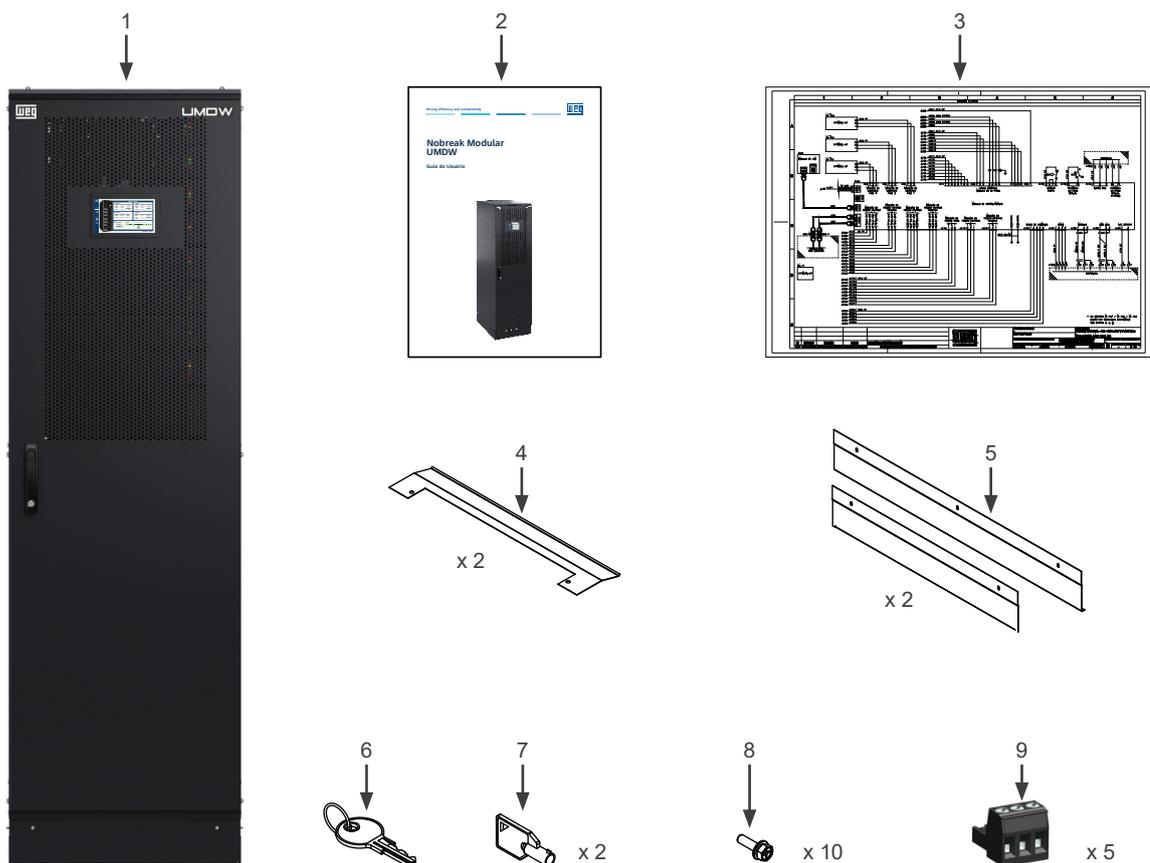


Figure 4.2: Items to be checked during the receiving inspection

If you find any missing or damaged items, please contact the sales representative.

5 INSTALLING AND CONNECTING

This chapter describes the electrical and mechanical installation procedures for the UMDW. All instructions and recommendations must be followed to ensure personnel safety, equipment protection, and proper product operation.



ATTENTION!

Before moving the product using the casters, remove all power modules from the cabinet. Transporting the cabinet with the modules installed may compromise the equipment stability and integrity.



ATTENTION!

During transportation, keep the equipment in the upright position and avoid tilting it more than 10°. Excessive tilting may cause internal damage or compromise safety.



DANGER!

Failure to follow the above instructions may result in equipment tipping, posing a safety hazard and causing significant material damage.

5.1 INSTALLATION ENVIRONMENT

Before installing the product, ensure that the installation site can support the total weight of the cabinet and accessories. Total weight varies depending on the configuration. Temperature and humidity conditions must comply with the product specifications.

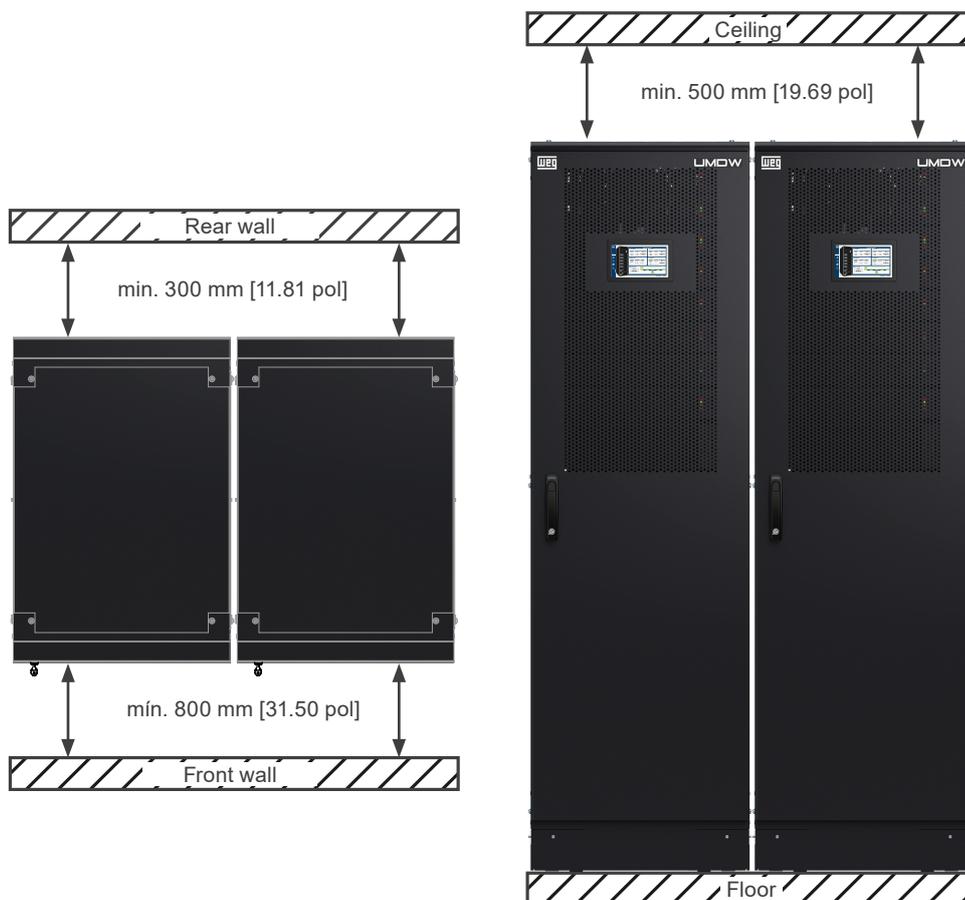


Figure 5.1: Distance information for the environment where the product will be installed

INSTALLING AND CONNECTING

Install the UMDW away from water sources, heat sources, and flammable or explosive materials. Keep the product protected from direct sunlight, dust, volatile gases, corrosive agents, and air containing salt particles. The environment must be free of conductive metallic particles.

The product uses horizontal airflow. Therefore, the clearances shown in [Figure 5.1 on page 5-1](#) must be maintained for proper operation: Rear of the product to rear wall: ≥ 300 mm [11.81 pol] Front of the product to front wall: ≥ 800 mm [31.50 pol] Top of the product to ceiling: ≥ 500 mm [19.69 pol].

5.2 MECHANICAL INSTALLATION

The product must be installed in a suitable sheltered location. The pollution degree of the environment must not exceed level 2. The air must be free of conductive particles.

The floor must be level. The product is equipped with casters to facilitate positioning. [Figure 5.2 on page 5-2](#) shows the proper procedure for securing the cabinet.

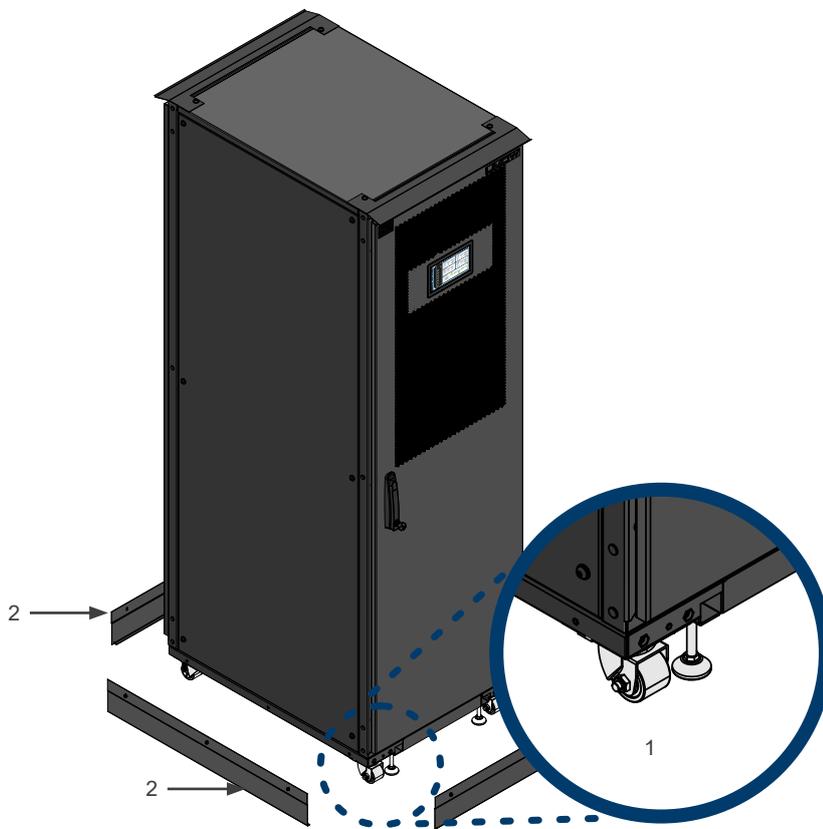


Figure 5.2: Information for panel floor installation and mounting

First, position the cabinet in its final location. Next:

1. Rotate the four leveling feet counterclockwise until the casters are fully lifted off the floor.
2. Install the four base covers and secure them using M4 × 14 mm screws.

5.3 ELECTRICAL CONNECTIONS



DANGER!

The following information is intended to serve as a guide for proper installation. All applicable electrical installation standards must also be followed.



DANGER!

Ensure that the input power supply is completely disconnected before starting any wiring procedures.



ATTENTION!

Perform a complete check of all screw tightening and internal electrical connections, following the identification labels and the supplied electrical schematic.

All electrical connections are located at the bottom of the cabinet, except for the dry contacts and the Ethernet connector. The following sections describe the proper connection procedures.

To access the terminal areas, remove the internal protective plates.

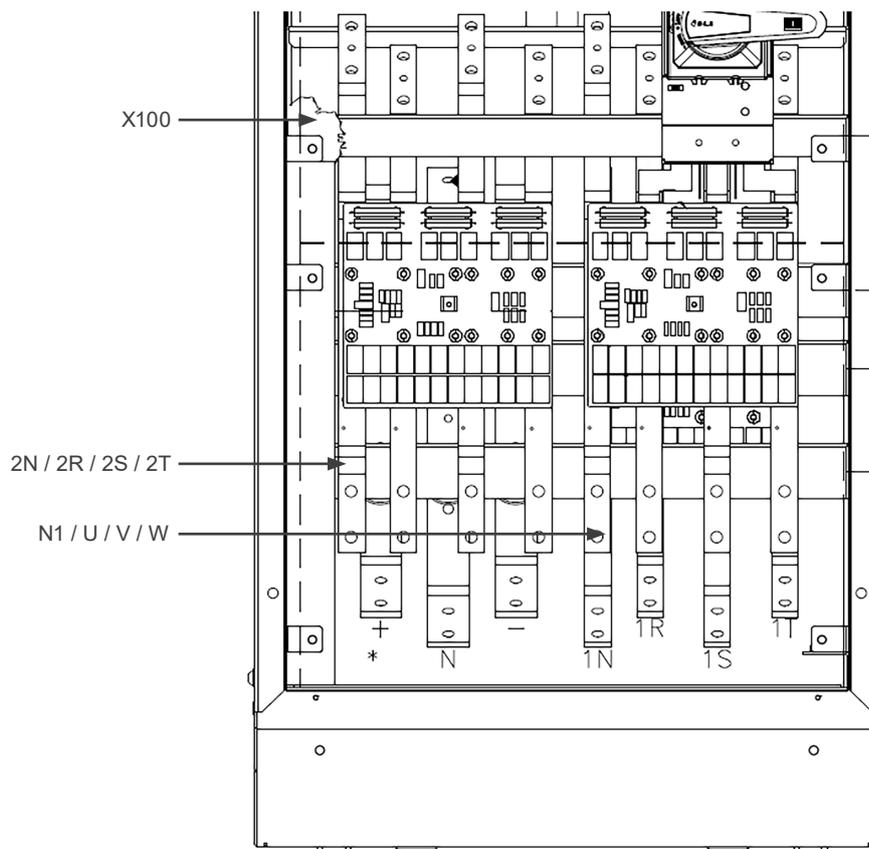


Figure 5.3: Identification of power and communication connection terminals

5.3.1 Power Connections

Observe the following precautions before connecting the cables:

- Ensure that the AC supply cables and battery cables are de-energized and cannot be energized accidentally.
- Disconnect the power modules, bypass module, and control module from the cabinet.
- Verify that the input mains voltage and battery bank voltage are within the allowable limits for the product.

INSTALLING AND CONNECTING

Start by connecting the grounding cable that must be fastened to the corresponding terminal or bar. Next, connect the battery bank power cables (positive, midpoint, and negative) and the main input cables (1N, 1R, 1S, and 1T), as shown in [Figure 5.4 on page 5-4](#).

Finally, connect the bypass input cables. (2N, 2R, 2S and 2T) and the output cables (N1, U, V and W).

Minimum power cable sizes for each product are specified in [Table 5.1 on page 5-4](#).

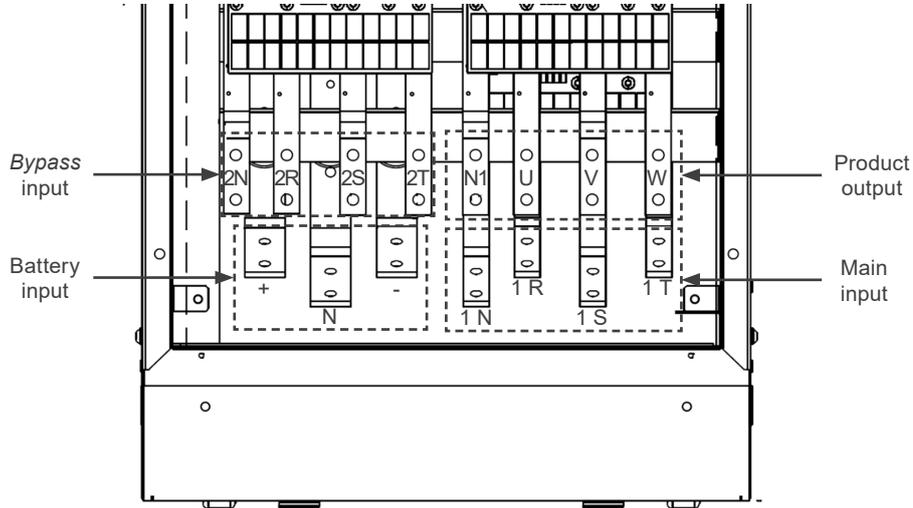


Figure 5.4: Identification of power connection terminals

Table 5.1: Minimum gauge to be used in each UMDW model

Power Capacity		Frame I - 75 kVA	Frame II - 125 kVA	Frame III - 200 kVA
Number of Modules		3	5	8
Main AC Input (1N/1R/1S/1T)	Current with a line voltage of 380 V and maximum battery charge	150.0 A	250.0 A	400.0 A
	Current with minimum voltage and maximum battery charge	150.0 A	250.0 A	400.0 A
	Gauge recommendation	70 mm ² (≈ 2/0 AWG)	120 mm ² (≈ 4/0 AWG)	2x95 mm ² (≈ 3/0 AWG)
	Recommended circuit breaker	180 A	300 A	450 A
	Screw	M8	M8	M10
Bypass AC Input (2N/2R/2S/2T)	Current with a line voltage of 380 V	142.0 A	236.7 A	378.8 A
	Current with a line voltage of 311 V	174.0 A	290.1 A	464.1 A
	Gauge recommendation	70 mm ² (≈ 2/0 AWG)	2x70 mm ² (≈ 2/0 AWG)	2x120 mm ² (≈ 4/0 AWG)
	Recommended circuit breaker	150 A	350 A	500 A
	Screw	M8	M8	M10
Output (N1/U/V/W)	Discharge current (40 batteries - 440 V)	188.4 A	314.0 A	502.4 A
	Gauge recommendation	95 mm ² (≈ 3/0 AWG)	2x70 mm ² (≈ 2/0 AWG)	2x120 mm ² (≈ 4/0 AWG)
	Recommended circuit breaker	200 A	350 A	500 A
	Screw	M8	M8	M10

It is recommended to use the WEG circuit breakers listed in [Table 5.2 on page 5-5](#) according to the rated current, or equivalent circuit breakers with a compatible trip curve.

Table 5.2: Rated current selection by WEG circuit breaker

Rated Current	Model	Detailed Model	Code
150 A	ACW160 H ou ACW161 H	ACW160H-FMU160-3 ACW161H-ETS160-3	11111221 12427235
180 A	ACW250 H	ACW250H-ATU200-3 ACW250H-ETS250-3	11111344 12427237
200 A	ACW250 H	ACW250H-ATU200-3 ACW250H-ETS250-3	11111344 12427237
250 A	ACW250 H	ACW250H-ATU250-3 ACW250H-ETS250-3	11111342 12427237
300 A	ACW400 H	ACW400H-ETS400-3 ACW400H-ETM400-AC-3	11111394 12673278
350 A	ACW400 H	ACW400H-ETS400-3 ACW400H-ETM400-AC-3	11111394 12673278
400 A	ACW400 H	ACW400H-ETS400-3 ACW400H-ETM400-AC-3	11111394 12673278
450 A	ACW630 H	ACW630H-ETS630-3 ACW630H-ETM630-AC-3	11111408 12673279
500 A	ACW630 H	ACW630H-ETS630-3 ACW630H-ETM630-AC-3	11111408 12673279

5.3.2 Connecting the Emergency Power Off (EPO) Pushbutton

The normally closed (NC) emergency power off pushbutton must be connected to terminal block X100, pins 2 and 3. To connect the emergency pushbutton, the *jumper* between pins 2 and 3 must be removed, and the pushbutton wiring must be installed as shown in [Figure 5.5 on page 5-5](#).

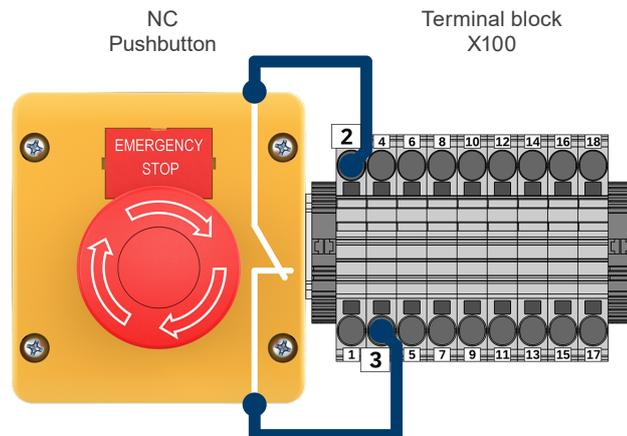


Figure 5.5: Emergency power off (EPO) connection

5.3.3 Connecting the External Maintenance Bypass

The external maintenance *bypass* connection is performed on terminal block X100, pins 4 and 5. To install this feature, the *bypass* device terminals must be wired as shown in [Figure 5.6 on page 5-6](#).

The installation of the maintenance *bypass* is optional and left to the customer’s discretion. It is recommended only for applications in which the system operation must be maintained during planned technical interventions, while always observing the safety requirements of the application. In single-rack applications, this installation may not be necessary, however, in systems with racks operating in parallel, the use of a bypass is mandatory, as it ensures operational continuity and safety during maintenance activities.

A circuit breaker or transfer switch may be used to implement the *bypass*, provided that the selected device includes a closure feedback. This feedback must be a normally-open (NO) contact and must be connected to the supervision circuit to ensure that the system correctly detects the active bypass condition.

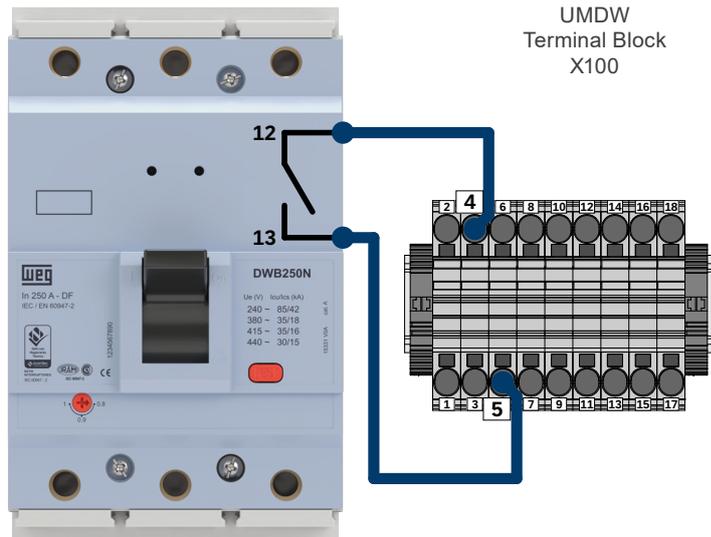


Figure 5.6: Connection of the external bypass device

To ensure safe operation of the system while using the external maintenance bypass, the circuit breaker or transfer switch must be selected according to the system current rating.

Table 5.6 on page 5-7 shows the recommended current ratings for the bypass device, according to rack power, with margin for continuous operation. Using an undersized device may compromise safety and system performance.

Table 5.3: Recommended current capacity for the external bypass device

Rack Power	Recommended Current
75 kVA	150 A
125 kVA	250 A
200 kVA	400 A

5.3.4 Installing and Connecting the Battery Temperature Sensor

Install one end of the temperature sensor cable close to the batteries, at a spot that reflects the ambient temperature of the installation place. It is recommended to install it in a midpoint of the battery bank—it is not necessary that the sensor touch the battery.

The other end, which connects to the product, must be wired to pins 16 and 17 of the terminal block X100.

5.3.5 Installing and Connecting the CMSW Sensor

The CMSW sensor (Figure 5.7 on page 5-6) is an optional accessory that can be installed for measuring vibration (x, y, and z), contact temperature, humidity, and atmospheric pressure.

The sensor must be mounted on a suitable surface, in accordance with its own manual.

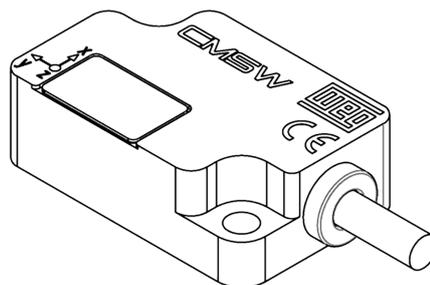


Figure 5.7: CMSW sensor

Connections to the UMDW sensor must follow the arrangement shown in Table 5.4 on page 5-7. The sensor configuration is performed on the screen described in Item 6.2.11 Accessories Settings Screen on page 6-12.

Table 5.4: CMSW installation connections on the UMDW product

CMSW Cable Color	UMDW Terminal Block X100	Signal
Brown	Pin 6	Power +
White	Pin 7	RS485 (B)
Blue	Pin 8	GND
Black	Pin 9	RS485 (A)

5.3.6 Dry Contact Connections

The dry contact outputs are wired directly to the dry contact module in the management module (see [Item 3.5.1 Management Module on page 3-11](#)). The dry contact connections are shown in [Table 5.5 on page 5-7](#). Dry contacts support up to 230 V AC (rms) or 24 V DC, with a maximum current of 5 A AC or 1 A DC.

Configuration of the dry contact outputs is carried out on the screen shown in [Item 6.2.12 Dry-Contact Output Settings Screen on page 6-12](#).

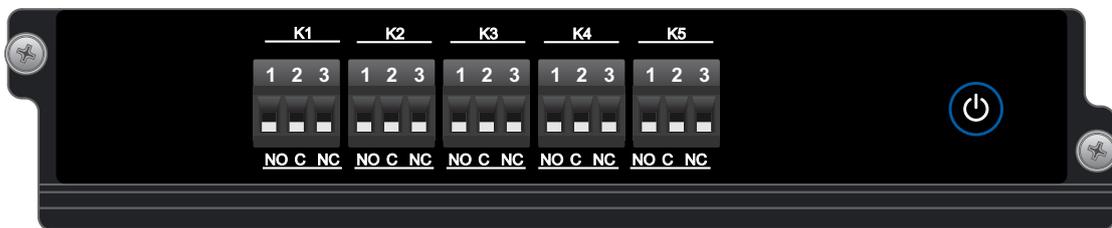


Figure 5.8: Front view of the dry contact module membrane

Table 5.5: CMSW installation connections on the UMDW product

Dry Contact	NO Contact	Contact	NC Contact
Dry contact 1 - K1	Pin 1	Pin 2	Pin 3
Dry contact 2 - K2			
Dry contact 3 - K3			
Dry contact 4 - K4			
Dry contact 5 - K5			

5.3.7 Modbus Communication Connections

The Modbus communication connections are performed directly on terminal block X100. Wiring must follow the arrangement shown in [Table 5.6 on page 5-7](#).

Communication settings are configured on the screen shown in [Item 6.2.9 Modbus Communication Settings Screen on page 6-10](#). Available variable addresses are listed in [Table A.1 on page A-1](#).

Table 5.6: Modbus communication wiring connections for the UMDW

UMDW Terminal Block X100	Signal
Pin 10	RS485 (B)
Pin 11	RS485 (A)
Pin 12	GND

5.3.8 Ethernet Connection

The Ethernet connector is located on the product’s HMI and serves as the interface for SNMP, Modbus TCP, and HTTP. Configuration of this port is performed on the screen shown in [Item 6.2.8 Network Port Settings Screen on page 6-10](#).

5.3.9 Rack Parallel Operation Connections

The UMDW allows parallel operation of up to eight units for load expansion and/or redundancy. For product parallel operation, all units must be of the same model, must have the same frame (due to the *bypass*), and must be configured with the same voltage and frequency parameters.

When product parallel operation is implemented, the sum of the cable lengths between the *bypass* input cables and output cables must be the same for all units. [Figure 5.9 on page 5-8](#) shows an example of cabling for product parallel operation. The sum of the cable lengths $L1 + L3$ must be equal to the sum of the cable lengths $L2 + L4$.

The input power supply cables must be branched from the distribution panel, and each unit must have its own protection and isolation system. The same applies to the output connections supplying the load, as shown in the example in [Figure 5.10 on page 5-8](#).

The DB9 parallel operation cable must be connected from one unit to the next, and the units at the ends must be connected to the product's internal termination board, as shown in [Figure 5.11 on page 5-9](#).

The parallel operation settings screen is shown in [Item 6.2.3 Product Parallel Operation Settings Screen on page 6-6](#). The procedure for parallel operation configuration is described in [Item 7.2.4 Parallel Operation Settings on page 7-2](#).

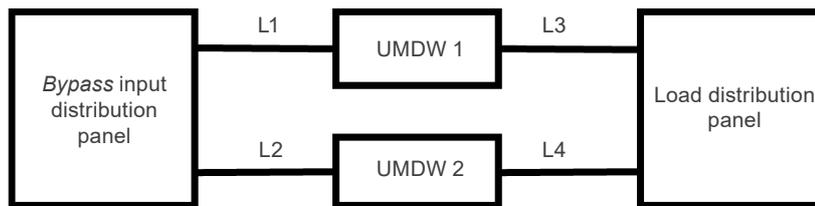


Figure 5.9: Example of bypass input and output cabling for products operating in parallel

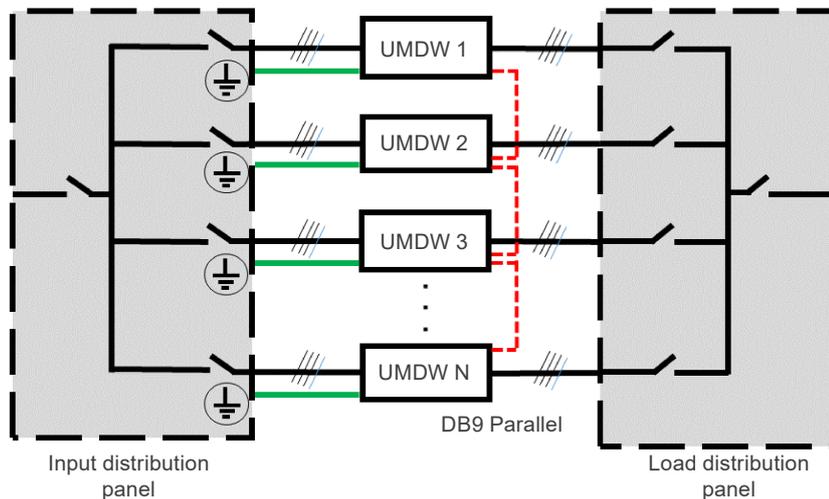


Figure 5.10: Example of connection cabling for parallel operation



Figure 5.11: DB9 cable connections for rack parallel operation

5.3.9.1 Maximum Communication Cable Lengths Between Racks

To ensure the integrity of communication between modules in a UPS system operating in parallel, it is mandatory to comply with the maximum communication cable length. The system supports up to 8 racks connected in a linear (daisy-chain) topology. Each pair of consecutive racks must be interconnected using cables of identical length.

The approved cables are available in the following lengths and codes: 2 m (code 18842112), 5 m (code 18842113), and 10 m (code 18842114). The total sum of all communication cables cannot exceed 40 meters. [Table 5.7 on page 5-9](#) shows the recommended combinations.

Table 5.7: Recommended cable lengths and combinations

Number of Racks	Number of Cables	2 m [78.74 pol] Cable	5 m [196.85 pol] Cable	10 m [393.70 pol] Cable
2	1	2 m [78.74 pol]	5 m [196.85 pol]	10 m [393.70 pol]
3	2	4 m [157.48 pol]	10 m [393.70 pol]	20 m [787.40 pol]
4	3	6 m [236.22 pol]	15 m [590.55 pol]	30 m [1181.10 pol]
5	4	8 m [314.96 pol]	20 m [787.40 pol]	40 m (limit) [1574.80 pol]
6	5	10 m [393.70 pol]	25 m [984.25 pol]	-
7	6	12 m [472.44 pol]	30 m [1181.10 pol]	-
8	7	14 m [551.18 pol]	35 m [1377.95 pol]	-

5.3.9.2 Recommended Technical Standards

- Do not mix cable lengths: use the same length between all racks.
- Use only approved cables (2 m, 5 m or 10 m).

5.3.9.3 Connecting the Emergency Power Off Pushbutton for Parallel Operation

In systems with racks operating in parallel, the normally closed (NC) emergency pushbutton must be connected to terminal block X100, pins 2 and 3 of each rack. To perform this connection, remove the jumper between pins 2 and 3 on all racks and connect the NC pushbutton in parallel across all these points, ensuring that the emergency signal is properly recognized by the entire system. The wiring follows the same guidelines used for individual EPO pushbuttons and is illustrated in [Figure 5.12 on page 5-10](#).

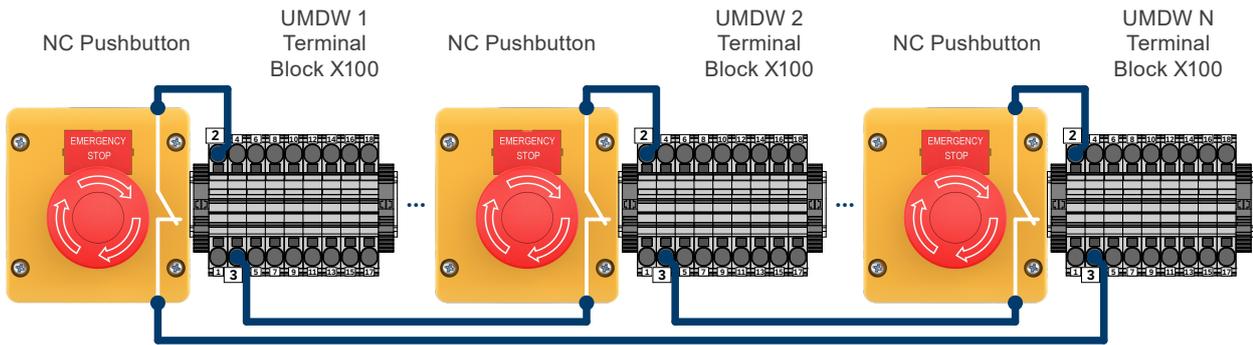


Figure 5.12: Emergency pushbutton connection in parallel system

5.3.9.4 Connecting the External Maintenance Bypass for Parallel Operation

The external maintenance *bypass* connection is performed on terminal block X100, pins 4 and 5. For installation, the bypass device terminals must be wired as shown in Figure 5.12 on page 5-10.

In systems with racks operating in parallel, installing the maintenance bypass is mandatory, as it ensures proper system operation, operational continuity, and safety during maintenance activities. In these cases, the *bypass* must be implemented using an external switch, not the internal maintenance switch of each rack.

A circuit breaker or transfer switch may be used to implement the *bypass*, provided that the selected device includes a closure feedback. This feedback must be a normally-open (NO) contact and must be connected to the supervision circuit to ensure that the system correctly detects the active *bypass* condition.

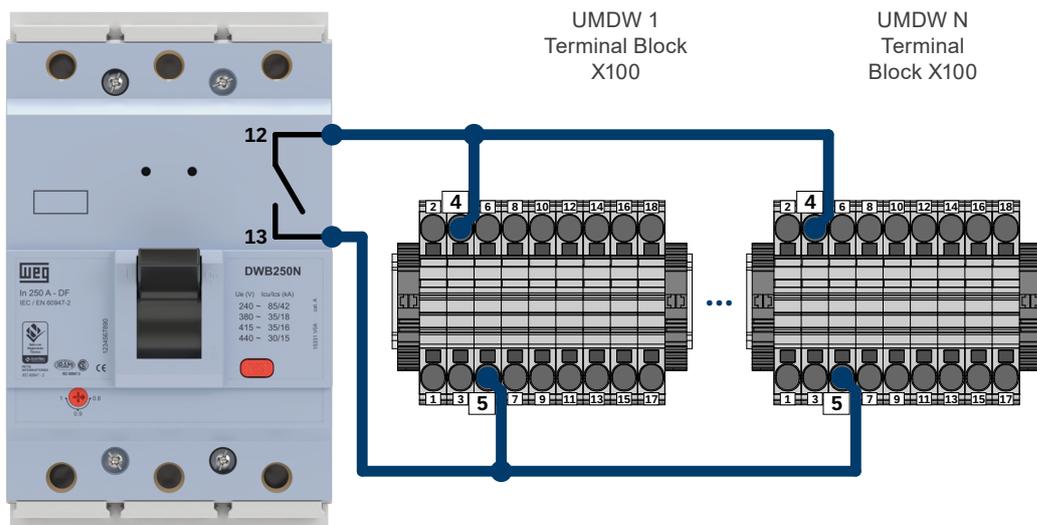


Figure 5.13: Connection of the external bypass device

Table 5.8 on page 5-11 lists the recommended current ratings for the bypass device according to the total power of the parallel racks, with margin for continuous operation. Using an undersized device may compromise safety and system performance.

Table 5.8: Recommended current capacity for the bypass device for racks in parallel mode

Number of Racks	Rack Power		
	Frame I - 75 kVA	Frame II - 125 kVA	Frame III - 200 kVA
1	150 A	250 A	400 A
2	300 A	500 A	800 A
3	450 A	700 A	1200 A
4	600 A	1000 A	1500 A
5	700 A	1200 A	2000 A
6	1000 A	1400 A	2200 A
7	1000 A	1600 A	2600 A
8	1200 A	1800 A	3000 A



ATTENTION!

Installing the maintenance bypass is mandatory in systems with racks operating in parallel, as it is essential for proper system operation, continuity, and safety during maintenance.

5.4 INSTALLING THE POWER MODULES

To install the power modules in the unit, remove the module from its packaging and attach the two mounting brackets with the 4 screws provided.

Next, remove the blank cover from the panel, as shown in [Figure 5.14 on page 5-11](#). Insert the module into the panel opening and secured it with the 4 M4 screws.

Power modules must be installed from bottom to top, as additional parallel modules are added. Slots that are not occupied by power modules must be covered using the blank cover supplied with the unit.

[Section 8.1 HOTSWAP REPLACEMENT – POWER MODULE on page 8-1](#) provides information on the *hotswap* replacement procedure.



Figure 5.14: Removing the blank plate to install the power module

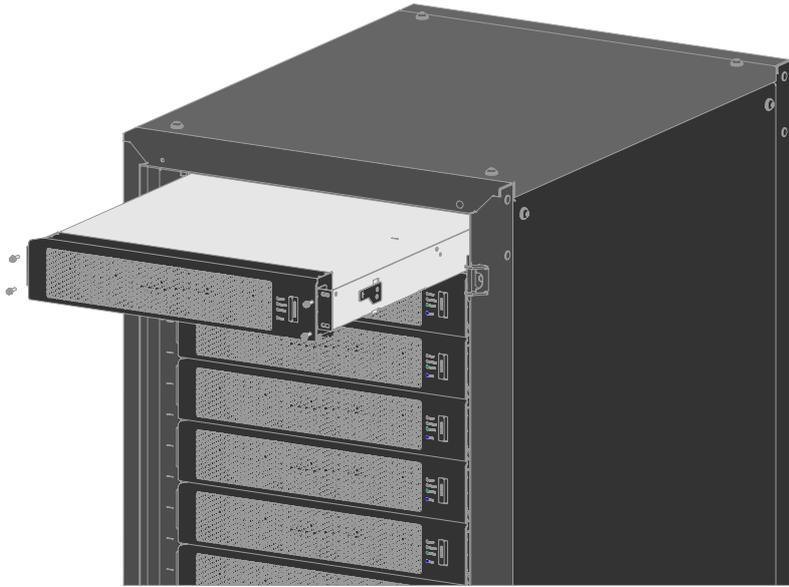


Figure 5.15: Power module connection



ATTENTION!

For the proper operation of the unit, all empty power-module slots must be fitted with the blank cover supplied with the product.

5.5 INSTALLING THE ACCESSORY TO COMPLY WITH THE IP21 REQUIREMENTS

To meet the IP21 protection rating, a top-mounted accessory must be installed as shown in [Figure 5.16 on page 5-13](#). For installation, follow the steps below:

1. Remove the four screws and washers from the top cover of the unit.
2. Install the front and rear accessories on the top of the cabinet.
3. Fasten both accessories using the four screws and washers removed in step 1.

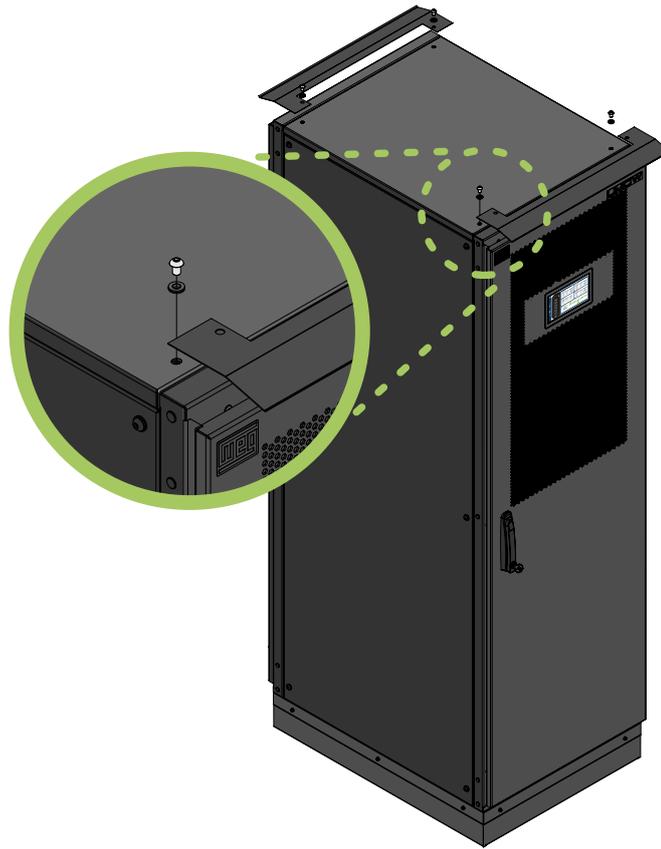


Figure 5.16: Installation of the accessory to comply with the IP21 requirements

5.6 INSTALLING THE BACKFEED PROTECTION CONTACTOR

The UMDW includes a backfeed protection function. For this protection to operate correctly, an external contactor must be installed to isolate the unit from the AC supply.

[Figure 5.17 on page 5-14](#) shows the wiring for systems where the main input and bypass input are the same. If the main and bypass input are independent, wiring must follow [Figure 5.18 on page 5-14](#).

By default, dry contact output 5 is assigned for activating protection. However, the user may configure any dry contact on the screen shown in [Item 6.2.12 Dry-Contact Output Settings Screen on page 6-12](#).

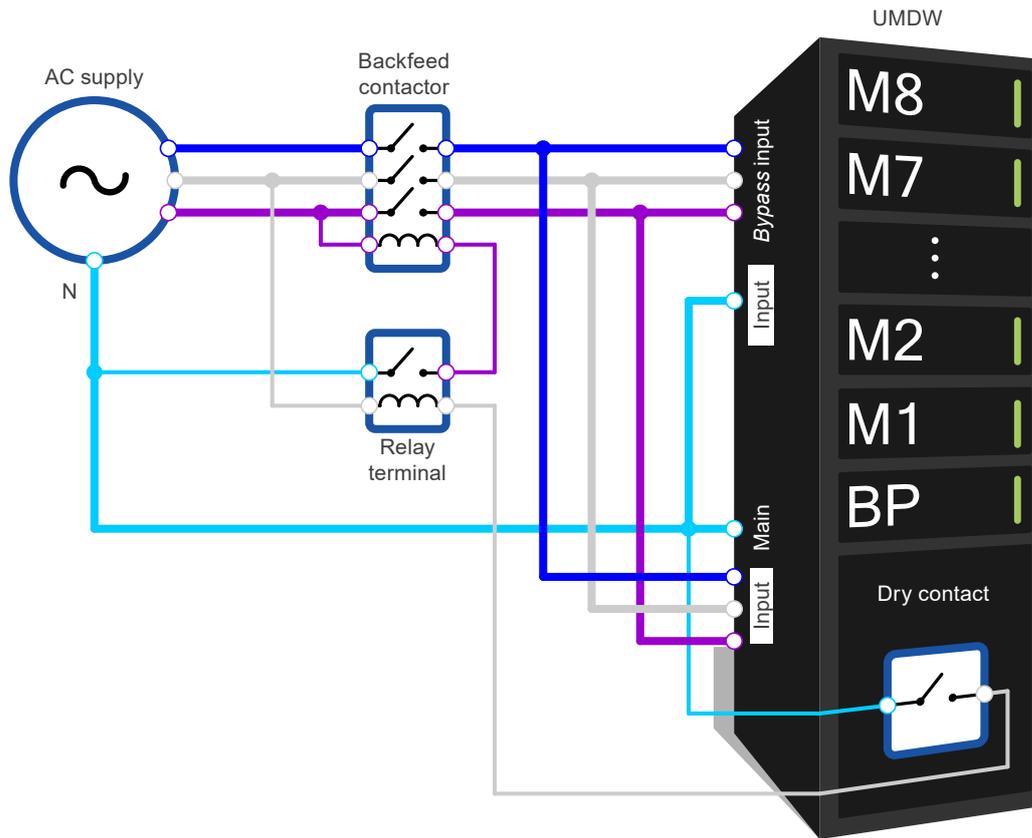


Figure 5.17: Recommended connections for activating the backfeed protection contactor when the main and bypass input are the same

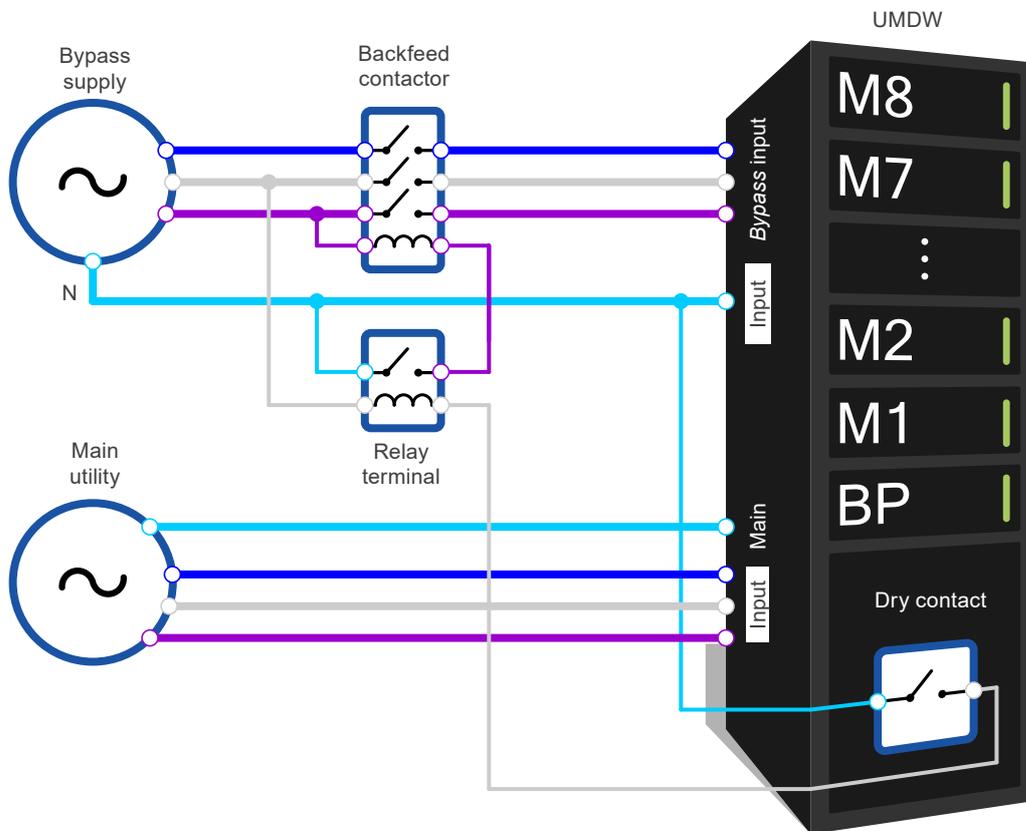


Figure 5.18: Recommended connections for activating the backfeed protection contactor when the main and bypass input are independent

6 HMI - HUMAN-MACHINE INTERFACE

This chapter describes the functionalities of the UMDW HMI. The human-machine interface displays all unit settings, measurements, indicators, and notifications.

Figure 6.1 on page 6-1 shows the main HMI menu with numbered functions. Na Table 6.1 on page 6-1 provides a brief description of each menu item.

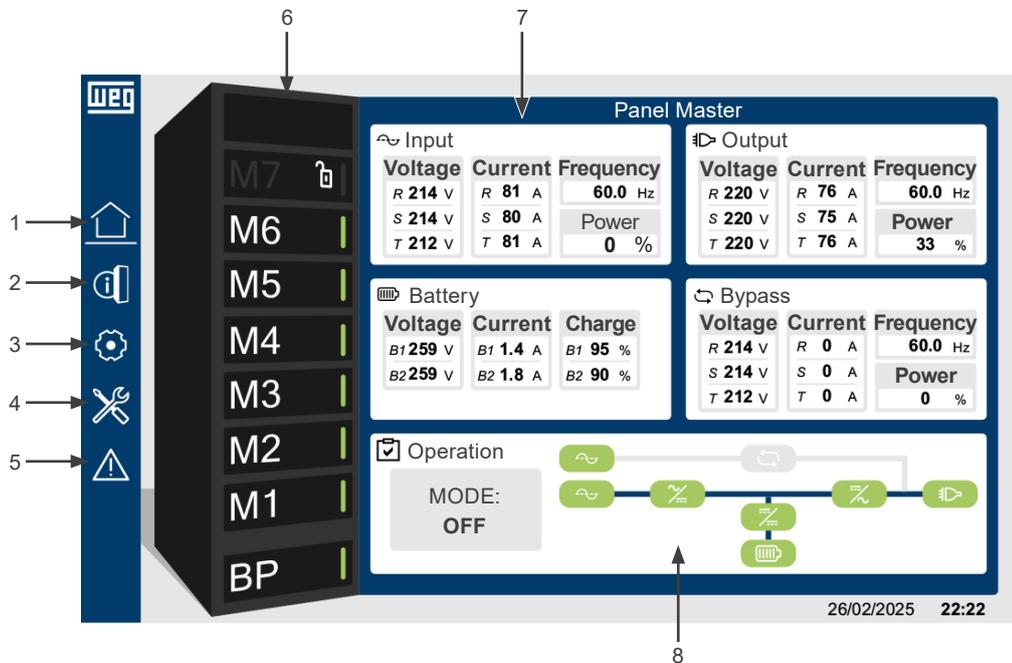


Figure 6.1: UMDW HMI main menu

Table 6.1: Main functionalities and their respective descriptions

Item	Function	Description
1	Main menu	Main screen with key product information
2	System measurements	Measurements of voltage, current, power, temperature, and fan RPM
3	Settings	Module settings, input voltage, operating mode, output voltage and frequency, dry contacts, communications, battery bank parameters
4	Maintenance	Software update, factory reset, battery connection, event log export
5	Notifications	Operational notifications, alarms, and faults
6	Modules <i>status</i>	Operating <i>status</i> of installed modules
7	Overview panel	Main information for the primary input, bypass input, output, and battery
8	Mimic diagram	Diagram showing the power flow and operating mode

6.1 PRODUCT MEASUREMENTS MENU

This menu displays all measurements performed by the unit. The System menu shows all global measurements of the product. The bypass menu shows internal measurements of the bypass module. Measurements of each power module are also available, with the option to select a specific module.



NOTE!

Due to the tolerance of the transducers and other parts used in the measurement system, the readings may differ from those obtained using other equipment.

6.1.1 Global Measurements (System)

En esta pantalla están disponibles las siguientes mediciones: The global voltage, current, and power measurements are displayed on the system information screen shown in [Figure 6.2 on page 6-3](#). The following measurements are available on this screen:

- Input voltage of phases R, S, and T.
- *Bypass* input voltage of phases R, S and T phases.
- Output voltage of phases R, S, and T.
- Battery bank voltage (positive-to-neutral and neutral-to-negative).
- Total input current of phases R, S, and T.
- Total output current of phases R, S, and T.
- Battery bank current (positive-to-neutral and neutral-to-negative).
- Active and apparent input and output power.
- Input and output voltage frequency.
- Battery NTC temperature.
- CMSW sensor readings (optional)
- Battery charge level (when the battery is charging).
- Battery autonomy time (when in battery mode).

6.1.2 *Bypass* Module Measurements

The *bypass* module measurement screen is shown in [Figure 6.3 on page 6-3](#). The following measurements are available on this screen:

- *Bypass* input voltage of phases R, S and T phases.
- Output voltage of phases R, S, and T.
- *Bypass* current of phases R, S and T.
- Active and apparent input and output power.
- Nominal power and the power still available.
- Thyristor temperature.
- Fan speed (RPM).

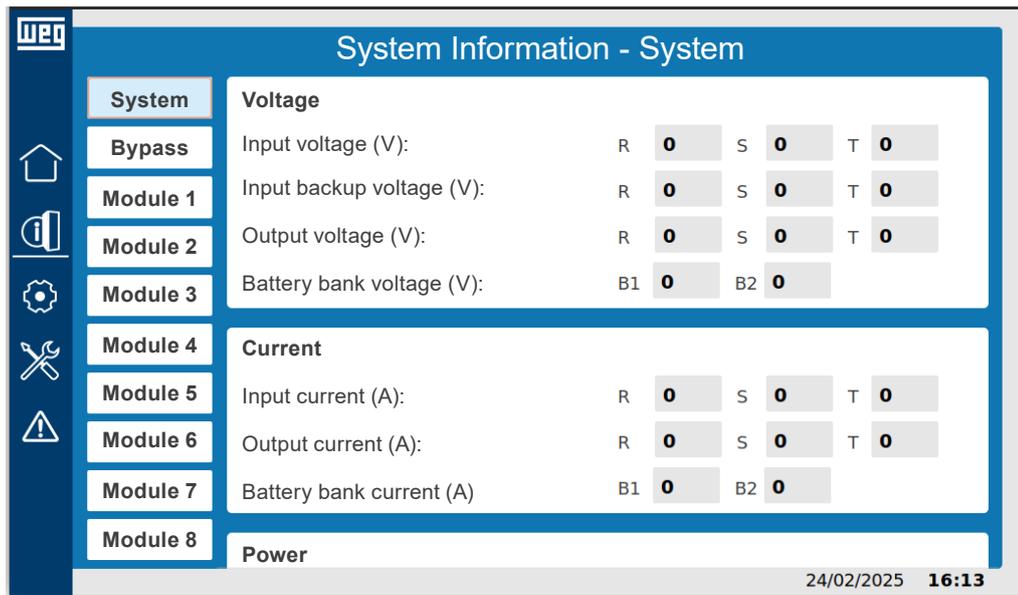


Figure 6.2: Global measurements menu of the system

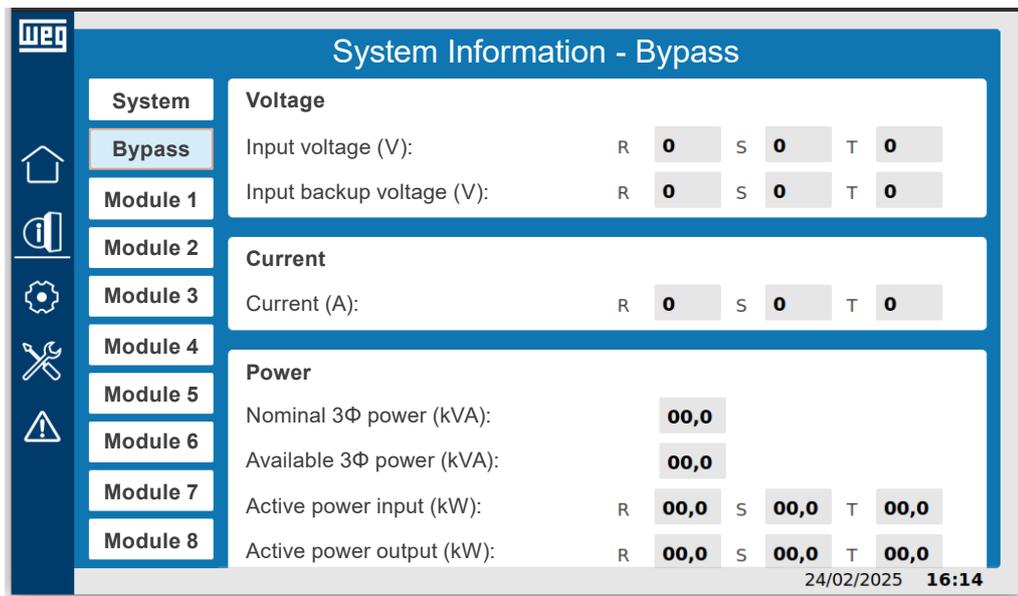


Figure 6.3: Global measurements menu of the bypass module

6.1.3 Power Module Measurements

The internal measurement screen of the power modules is shown in Figure 6.4 on page 6-4. The following measurements are available on this screen:

- Module input voltage for phases R, S, and T.
- Module output voltage for phases R, S, and T.
- Battery bank voltage (positive-to-neutral and neutral-to-negative).
- Module input current for phases R, S, and T.
- Module output current for phases R, S, and T.
- Input and output active and apparent power of the module.

- Rated module power rating and remaining available power.
- Temperature of the inverter, rectifier, and battery charger.
- Module input and output frequency.
- Fan speed (RPM).

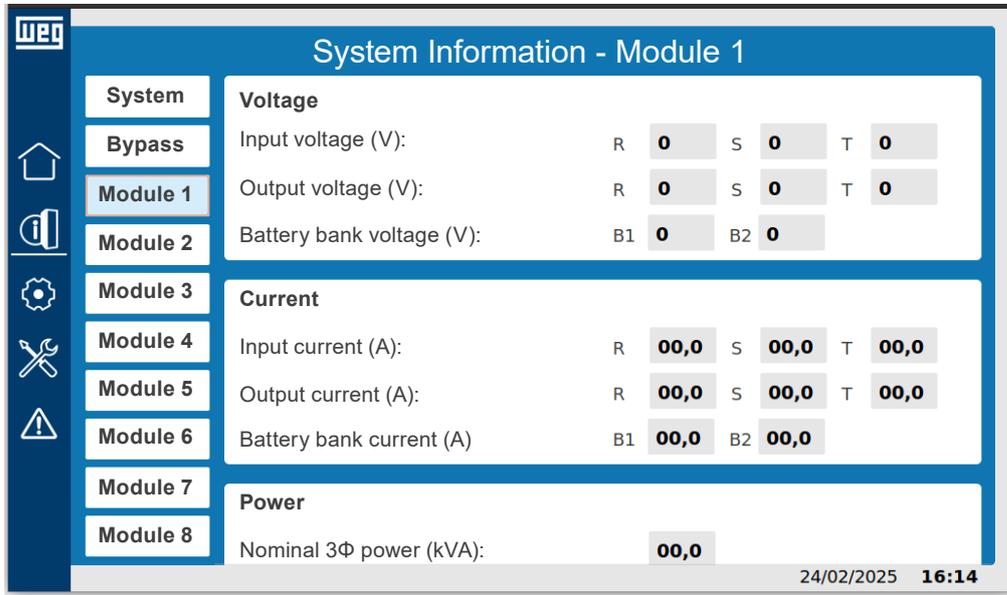


Figure 6.4: Global measurements menu of the power module

6.2 SETTINGS MENU

The system settings menu is shown in Figure 6.5 on page 6-4. This screen contains several product settings menus. The following sections present all the product configuration screens, showing what can be configured on each one.

Whenever any setting is changed, it is necessary to select the "Apply" option and enter the system user password.

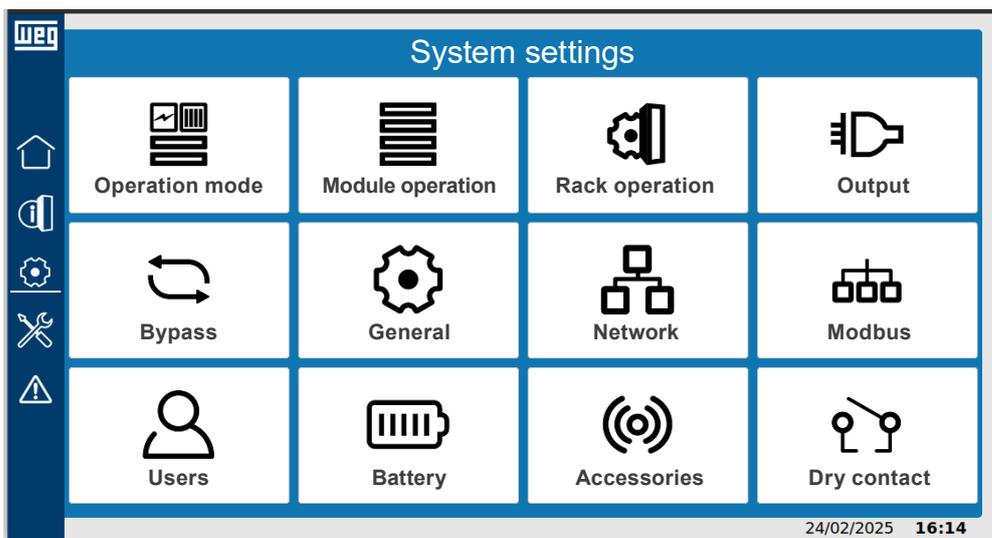


Figure 6.5: UMDW settings menu screen

6.2.1 Operating Mode Settings Screen

In the operating mode settings menu, shown in [Figure 6.6 on page 6-5](#), the user can select the desired operating mode for the product. The available operating modes are:

- Off.
- Normal.
- ECO.
- Manual *bypass*.
- Battery charger.

Each operating mode is described in [Section 3.2 OPERATING MODES on page 3-1](#).

6.2.2 Module Operation Settings Screen

[Figure 6.7 on page 6-6](#) shows the settings menu of the product modules. On this screen, the power modules and the bypass can be individually enabled or disabled. The modules that can be individually switched off are:

- *Bypass* module.
- Power module 01 (physically, the first module above the bypass module).
- Power module 02 (physically, the first module above power module 01).
- Power module 03 (physically, the first module above power module 02).
- Power modules 04 through 08 (physically counted from the bottom to the top of the rack).

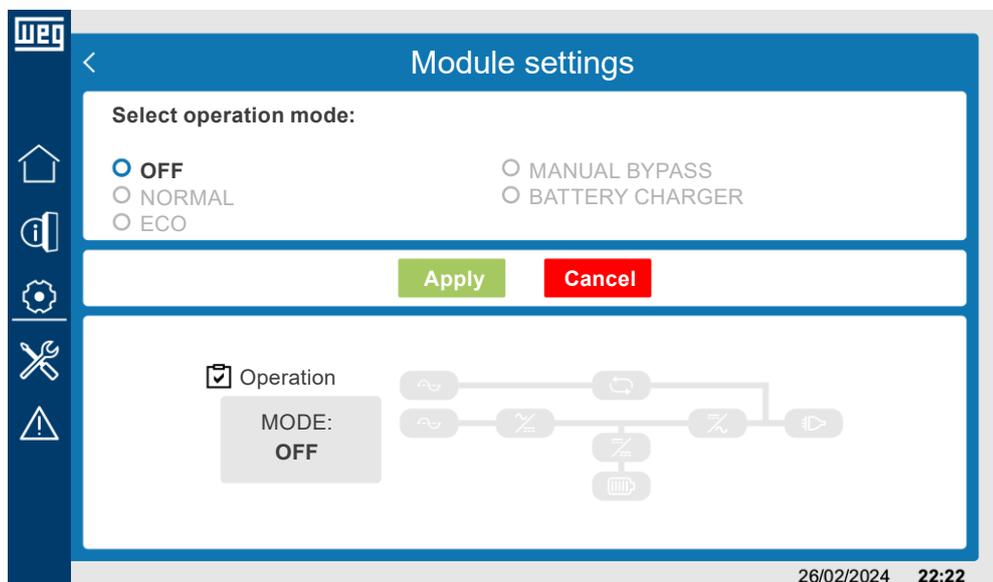


Figure 6.6: UMDW operating mode settings screen

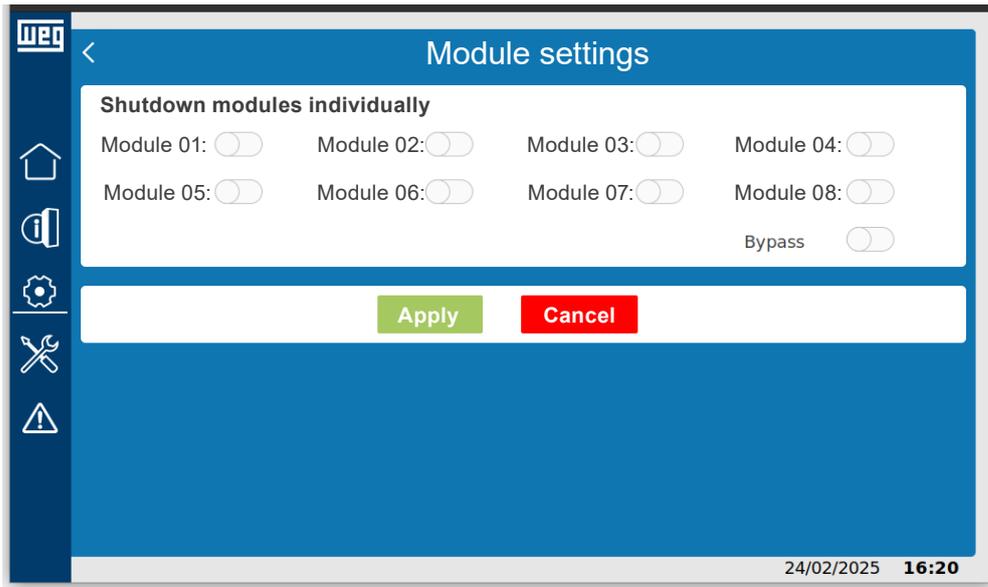


Figure 6.7: Module operating mode settings screen

6.2.3 Product Parallel Operation Settings Screen

In the rack settings menu, shown in [Figure 6.8 on page 6-6](#), it is possible to configure product parallel operation. The following parameters can be set:

- Parallel Operation: enables the product parallel operation function.
- Master: defines which unit is the master, responsible for sending information to the parallel system.
- Identification: numbering from 1 to 8 to identify each unit.
- Shared battery bank: enables combined charging when a single battery bank is used for all units in parallel.

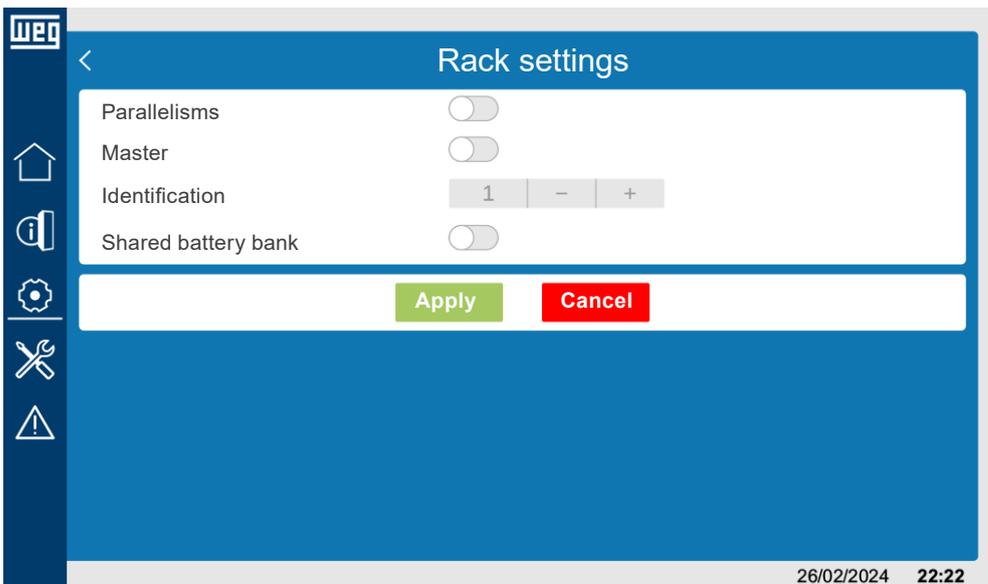


Figure 6.8: Product parallel operation settings screen

6.2.4 Product Output Settings Screen

Figure 6.9 on page 6-7 shows the output settings screen. On this screen the following settings can be selected:

- Output voltage: sets the output voltage; options are 220 V, 230 V, or 240 V (phase-to-neutral).
- Output frequency: sets the output frequency; options are 50 or 60 Hz.
- Frequency tracking rate (Hz/s): allows configuring the frequency tracking rate in 0.1 Hz/s steps. The acceptable range is 0.1 Hz/s to 5 Hz/s.
- Enable automatic reconnection: when enabled, if the product is in normal mode and an output voltage fault occurs, the system will automatically attempt to return to normal mode. If disabled, the system will remain in the off mode and will only return to normal mode when the user issues a new command. Additionally, when disabled, the system will not allow entry into autonomous bypass mode if the management module is not present.

6.2.5 Bypass Input Settings Screen

In the bypass settings menu, shown in Figure 6.10 on page 6-8, the voltage and frequency tolerance ranges for bypass operation can be selected. The following parameters can be configured:

- Bypass voltage – upper tolerance: selectable options are 10 %, 15 %, 20 %, 25 %, or 30 %.
- Bypass voltage – lower tolerance: selectable options are 10 %, 15 %, 20 %, 25 %, 30 %, 35 %, or 40 %.
- ECO mode voltage – upper tolerance: selectable options are 5 %, 6 %, 7 %, 8 %, 9 %, or 10 %.
- ECO mode voltage – lower tolerance: selectable options are 5 %, 6 %, 7 %, 8 %, 9 %, or 10 %.
- Frequency tolerance: selectable options are 1 Hz, 2 Hz, 3 Hz, 4 Hz, or 5 Hz.

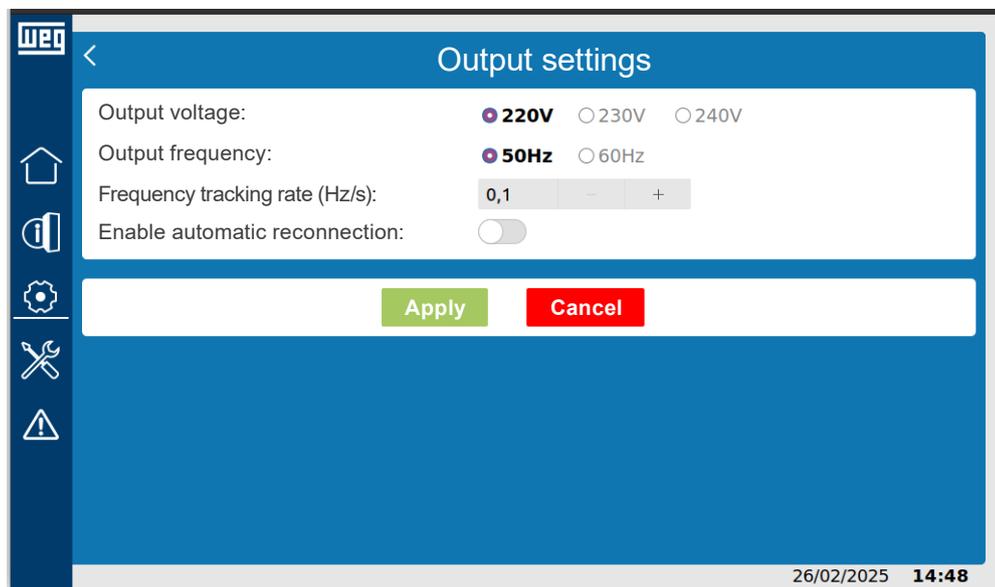


Figure 6.9: Output settings screen

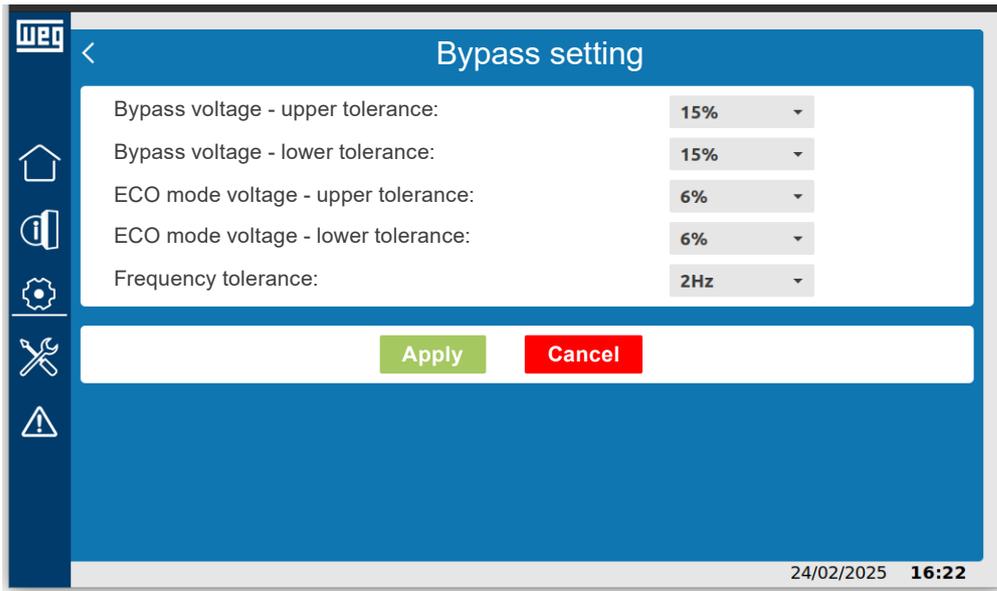


Figure 6.10: Bypass settings screen

6.2.6 Battery Bank Settings Screen

In the battery settings menu, shown in [Figure 6.11 on page 6-9](#), all battery bank parameters can be configured. The following parameters can be configured:

- Battery type selection.
- Rated bank voltage: number of batteries multiplied by the voltage of each cell.
- Float voltage.
- Equalization voltage.
- Undervoltage: threshold at which the UPS disconnects the load while keeping the HMI energized.
- Overvoltage: threshold at which the UPS disconnects the load.
- Charging current: battery charging current.
- Overtemperature: threshold for generating a battery temperature fault.
- Battery float thermal compensation settings.
- Enable LVD: activates the battery low voltage shutdown function.
- LVD voltage: threshold at which the unit fully shuts down (including the HMI) to preserve the battery. The value configured here must be lower than or equal to the undervoltage setting.
- LVD activation delay: sets the delay before the battery disconnection function actuates after the LVD voltage threshold is reached.

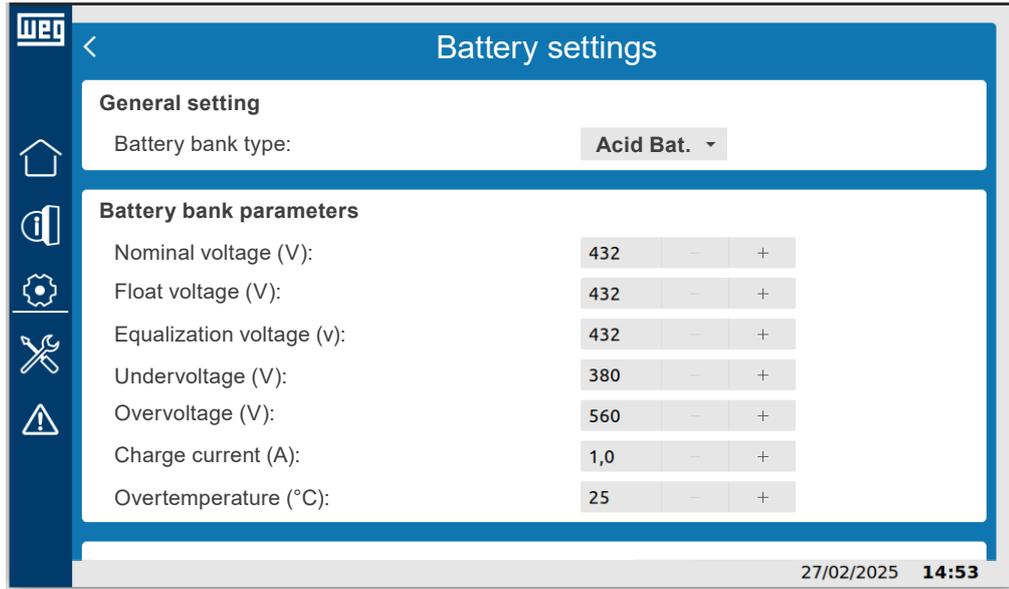


Figure 6.11: Battery Bank Settings Screen

6.2.7 General Settings Screen

Figure 6.12 on page 6-9 shows the general settings screen. On this screen, it is possible to enable the unit's audible alarm (buzzer), adjust the HMI display brightness, and set the display timeout. Display brightness can be adjusted from 0 (lowest brightness) to 5 (highest brightness).

The display timeout can be set from 0 (screen always on) up to 60 minutes. When enabled, the HMI display will turn off if no interaction occurs during the configured period.

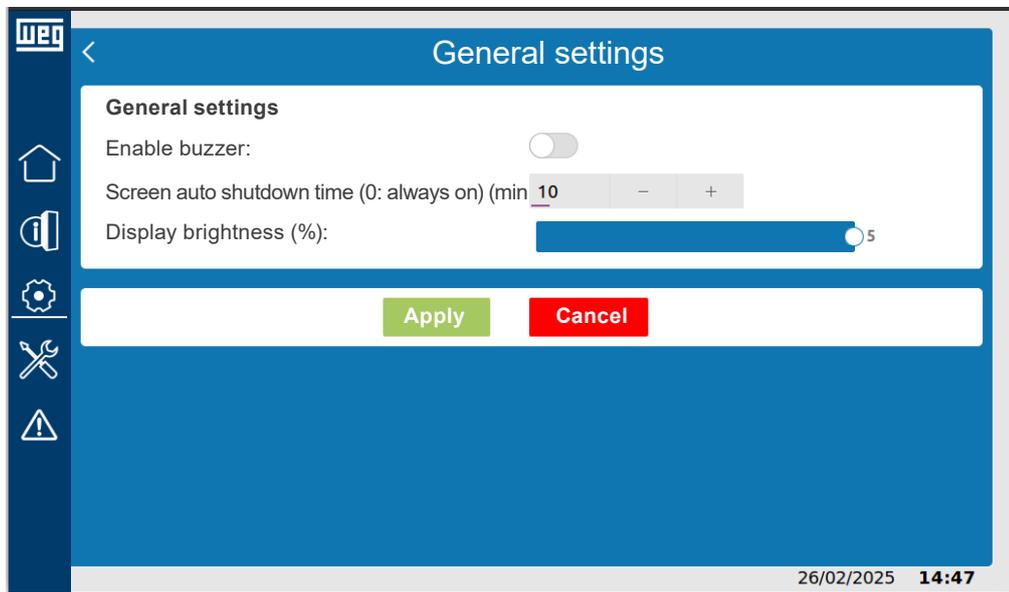


Figure 6.12: General settings screen

6.2.8 Network Port Settings Screen

In the network port settings menu, shown in [Figure 6.13 on page 6-10](#), the following can be configured:

- IP address: dynamic IP or static IP address.
- SNMP: SNMP parameters can be enabled and configured.

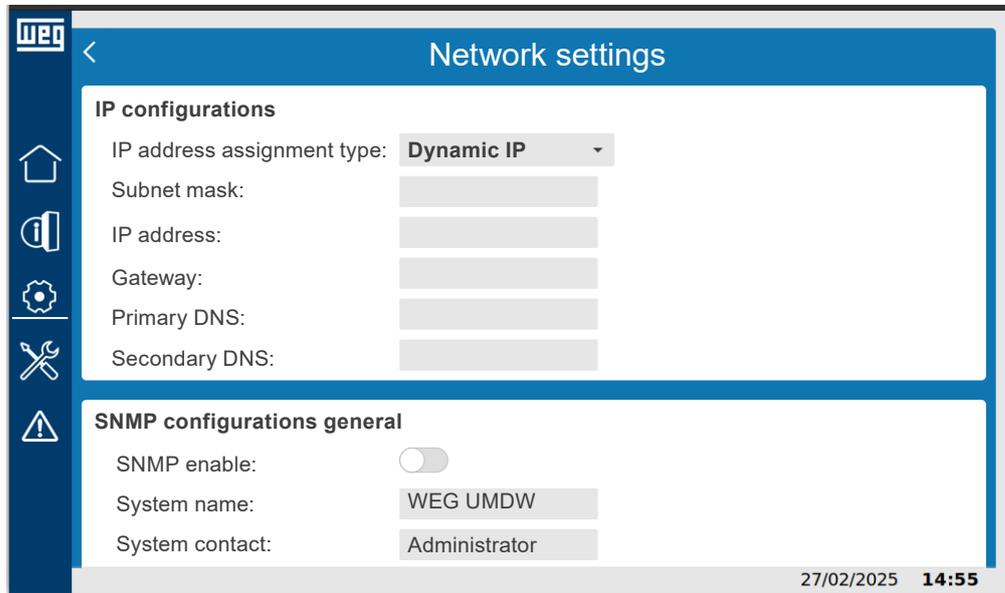


Figure 6.13: Network port settings screen

6.2.9 Modbus Communication Settings Screen

[Figure 6.14 on page 6-11](#) shows the Modbus settings screen, where the following parameters can be configured:

- Address: sets the device address on the Modbus network.
- Baud rate: selectable speeds of 9600, 19200, 38400, 57600, or 115200 bps.
- Data bits: number of data bits per communication byte (7 or 8 bits).
- Parity: error-checking setting (even, odd, or none).
- Stop bits: number of stop bits used to signal the end of a data byte (1 or 2 bits).
- TCP port: configures the TCP port used for Modbus communication.

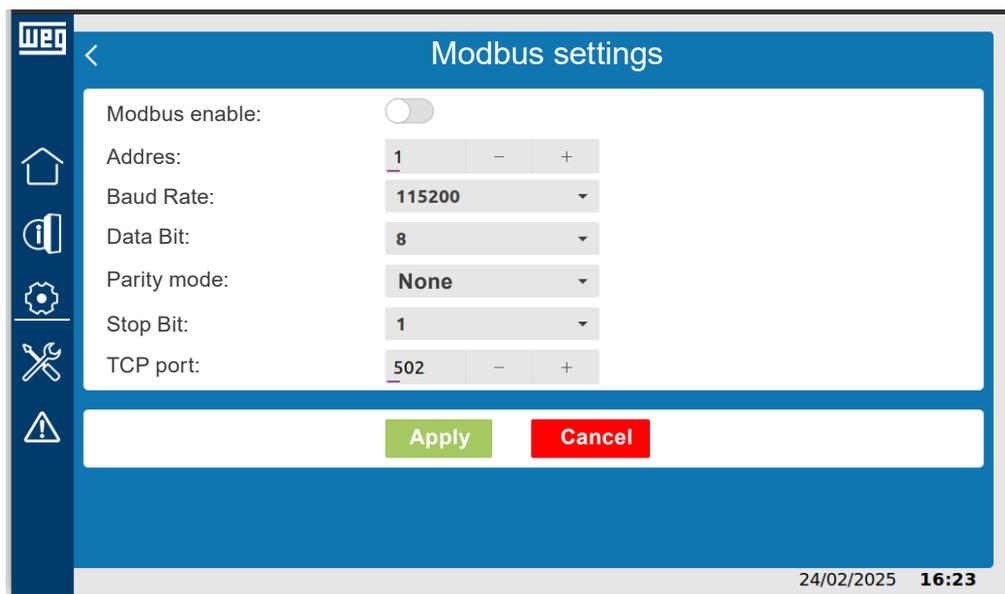


Figure 6.14: Modbus communication settings screen

6.2.10 User Settings Screen

On the user settings screen (Figure 6.15 on page 6-11), the following can be set:

- Language selection: english, portuguese, or spanish.
- Date and time settings: can be configured manually or automatically by enabling NTP server synchronization and selecting the time zone.
- Password change: updates the user password required for product configuration access. The current password must be entered to proceed. The factory default password is (123).

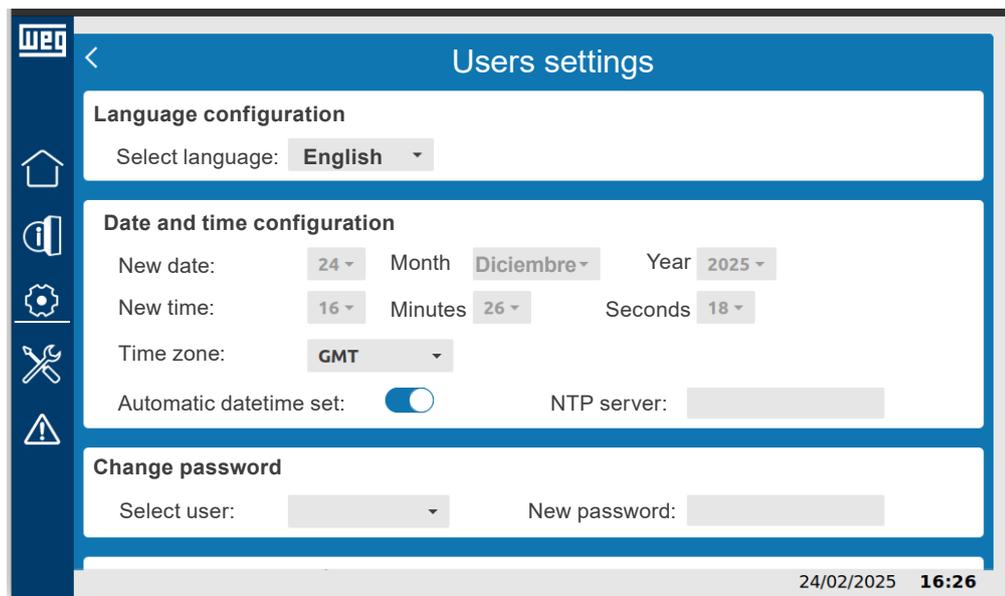


Figure 6.15: User settings screen

6.2.11 Accessories Settings Screen

The screen for configuring the CMSW sensor is shown in [Figure 6.16 on page 6-12](#). In this configuration screen, the alarm thresholds for the sensor’s measured variables can be set. The following settings are available:

- Vibration alarm: allows selection of the monitored axes and the vibration limits to generate the alarm. Frequency range: 2 to 6 kHz.
- Contact temperature alarm: minimum and maximum contact temperature thresholds to generate the alarm. Range: –20 °C to 80 °C.
- Ambient temperature alarm: minimum and maximum ambient temperature thresholds to generate the alarm. Range: –20 °C to 80 °C.
- Humidity alarm: upper and lower limits for relative humidity. Range: 20 % to 90 %.
- Pressure alarm: upper and lower limits for ambient pressure. Range: 300 to 1100 hPa.

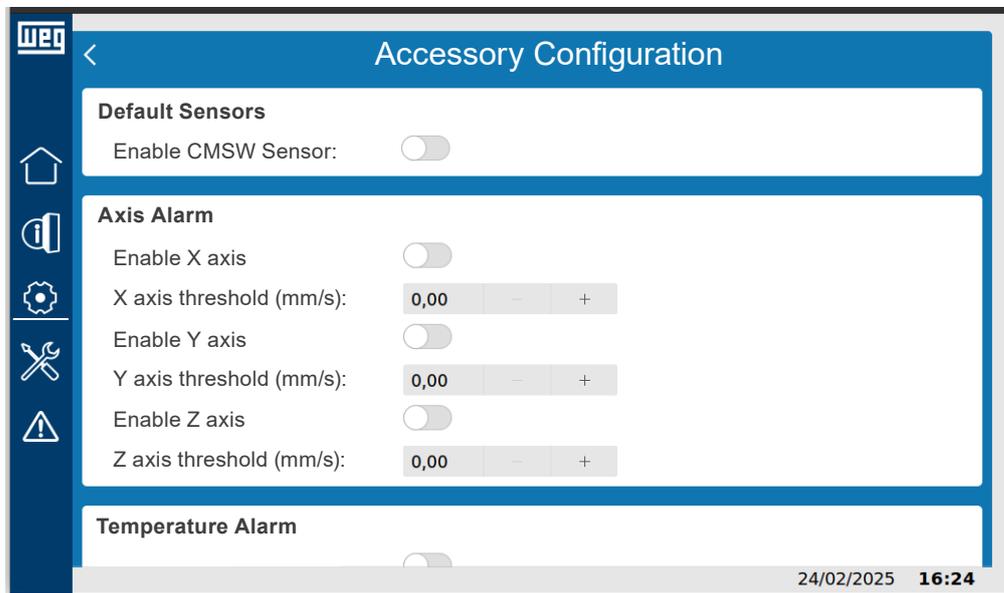


Figure 6.16: CMSW sensor settings screen

6.2.12 Dry-Contact Output Settings Screen

The dry contact settings screen is shown in [Figure 6.17 on page 6-13](#). The five available dry contacts can be configured by assigning events using the “plus” icon. Multiple alarms can be assigned to a single dry contact. [Table 6.2 on page 6-13](#) lists all events that can be assigned to the dry contact outputs. By factory default, the dry contacts are configured with the events described in [Table 6.3 on page 6-14](#).

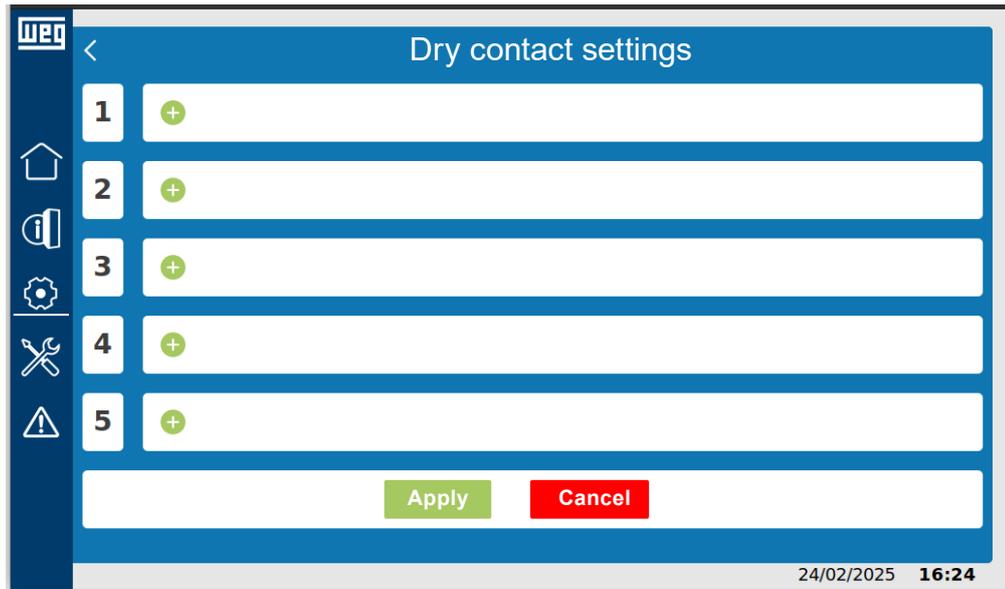


Figure 6.17: Dry contact settings screen

Table 6.2: Selectable events for dry contact outputs and their respective description

ID	Event Description	Type
80	Overvoltage - Main Input	Fault
81	Overvoltage - <i>Bypass</i> Input	Fault
82	Overvoltage - Output	Fault
83	Overvoltage - Battery Bank	Fault
480	Undervoltage - Main Input	Fault
481	Undervoltage - <i>Bypass</i> Input	Fault
482	Undervoltage - Output	Fault
483	Undervoltage - Battery Bank	Fault
878	Overcurrent - UPS Output	Fault
1211	Overfrequency - Main Input	Fault
1212	Overfrequency - <i>Bypass</i> Input	Fault
1213	Overfrequency - Output	Fault
1215	Underfrequency - Main Input	Fault
1216	Underfrequency - <i>Bypass</i> Input	Fault
1217	Underfrequency - Output	Fault
1231	Reverse Phase Sequence - Main Input	Alert
1232	Reverse Phase Sequence - <i>Bypass</i> Input	Fault
1361	Backfeed Protection Activated	Alert
1629	Overload - Output	Alert
1679	Overload - Output (R)	Fault
2071	High Temperature - Battery	Alert
2072	Overtemperature - Battery	Fault
2304	Maintenance Bypass On in Emergency Mode	Alert
3001	Online Mode	Notification
3003	Battery Mode	Notification
3005	Battery Charger Mode	Notification
3006	<i>Bypass</i> On	Notification
3007	Automatic <i>Bypass</i> On	Notification
3009	Manual <i>Bypass</i> Mode	Notification
3010	<i>Bypass</i> Off	Notification
3011	Eco Mode	Notification

ID	Event Description	Type
3012	Emergency Mode	Notification
6312	Bypass Module Fault	Fault
6313	Power Module Fault	Fault
6333	Power Module - Permanent Fault	Fault
6380	Shutdown started due to low battery voltage	Fault
6382	Battery Charged	Notification
6384	Low Battery	Alert
6385	Critical Low Battery	Fault
6386	Battery Test Failed	Notification
6390	Bypass Module Not Present	Alert
6400	Output Voltage Interrupted	Fault

Table 6.3: Table with standard events configured on dry-contact outputs

Output	Events
Dry contact 1	Output Voltage Interrupted
Dry contact 2	Overvoltage - Main Input
	Undervoltage - Main Input
	Overfrequency - Main Input
	Underfrequency - Main Input
Dry contact 3	Critical Low Battery
Dry contact 4	Bypass Module Not Present
Dry contact 5	Shutdown Initiated Due to Low Battery Voltage

6.3 MAINTENANCE MENU

In the Maintenance menu (Figure 6.18 on page 6-15), the following functions are available:

- Forced equalization charge.
- Battery connection: allows the battery bank to be connected or disconnected from the product during maintenance activities.
- Remote *firmware* update.
- USB port: for *firmware* update via USB flash drive, event log export, or configuration export.
- Event log clearance.
- Touchscreen calibration.
- Factory default *reset*.

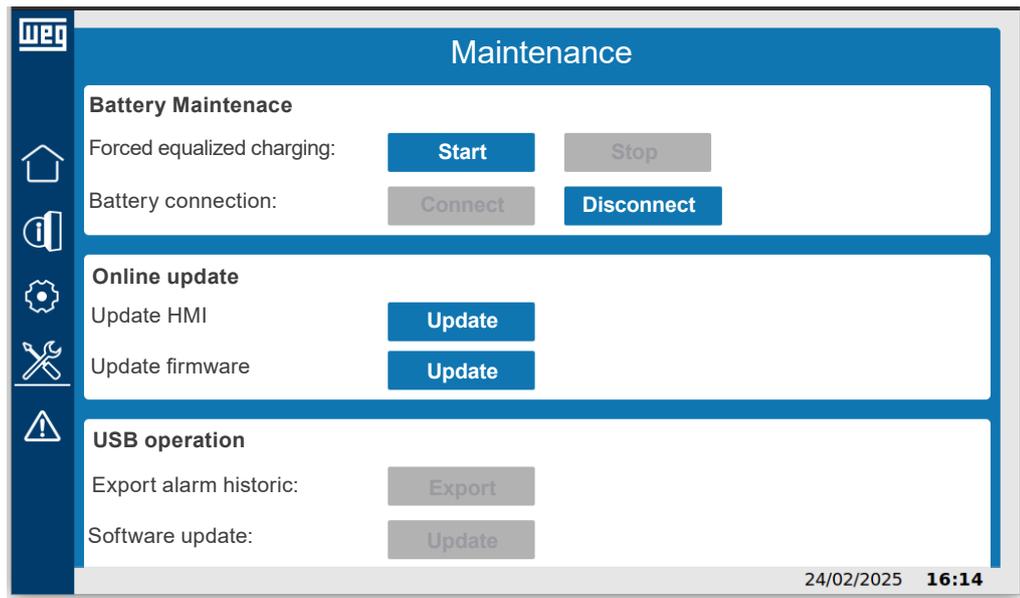


Figure 6.18: Maintenance screen

6.3.1 SETUP WIZARD

The purpose of the Setup Wizard is to provide a centralized and intuitive interface for the quick configuration of the rack main parameters. This interface is designed with a strong focus on usability, enabling technicians and operators to perform essential adjustments in a practical, safe, and efficient manner, without accessing the system's more advanced menus.

Its functionalities include:

- **Date and Time Configuration**
- Manual configuration:

Allows the user to manually enter the date (day/month/year) and time (hour/minute/second) using dedicated fields. This method is useful when the equipment is offline or installed in isolated environments.

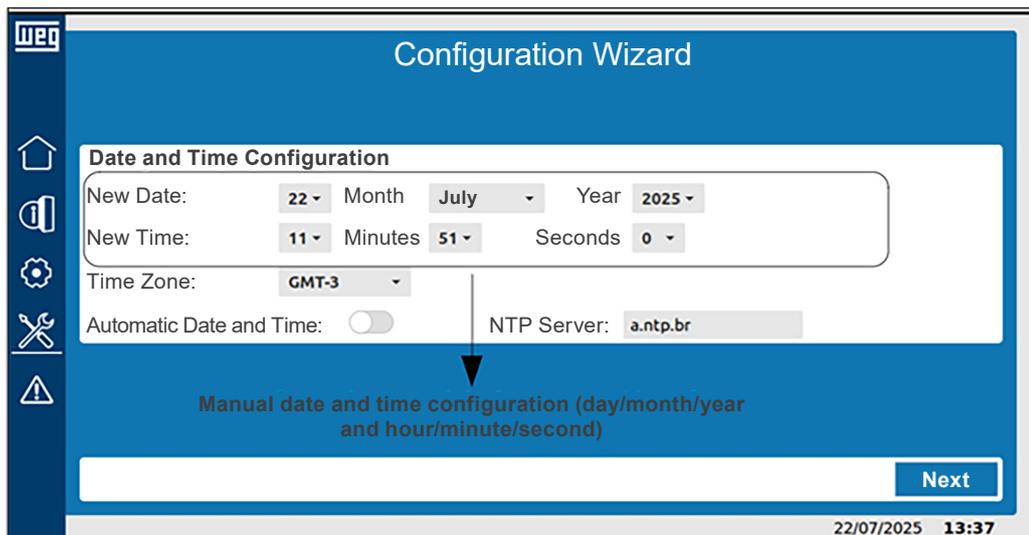


Figure 6.19: Manual configuration

■ Automatic configuration:

When automatic synchronization is enabled, the system continuously updates the date and time based on the selected global time zone and NTP servers (Network Time Protocol), such as a.ntp.br.

This option is recommended when network connectivity is available, ensuring accuracy and preventing time discrepancies in critical applications.

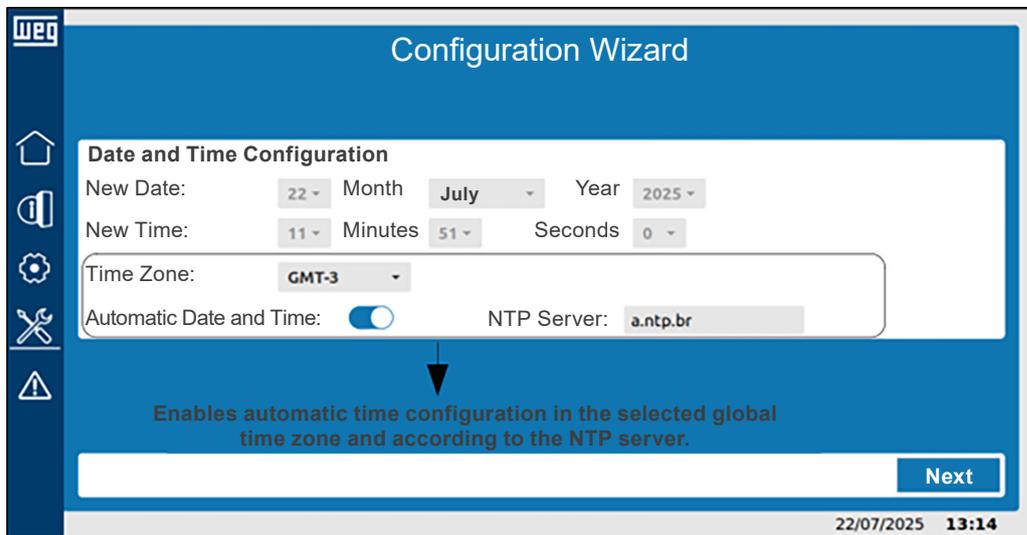


Figure 6.20: Automatic configuration

Note: when the automatic configuration button is OFF, the manual configuration fields become available.

■ Rack Settings

This screen allows the setup of parameters related to parallel system operation, enabling coordinated operation of multiple racks. Available settings include:

■ Parallel operation between Racks:

Enables or disables parallel operation mode, where two or more racks can share load in a synchronized manner.

This function is essential for high-power or redundancy-oriented systems.

■ Definition of master rack:

Identifies which rack will operate as the master in the topology. The master rack manages communication and synchronization between modules.

The remaining racks operate as slaves and follow the master's commands.

■ Rack identification (1 to 8):

Each rack in a parallel system must have a unique identifier. This number prevents address conflicts and ensures proper communication between modules.

■ Shared Battery Bank:

When enabled, this option indicates that all connected racks will share the same battery bank, ensuring optimal use of energy storage capacity.

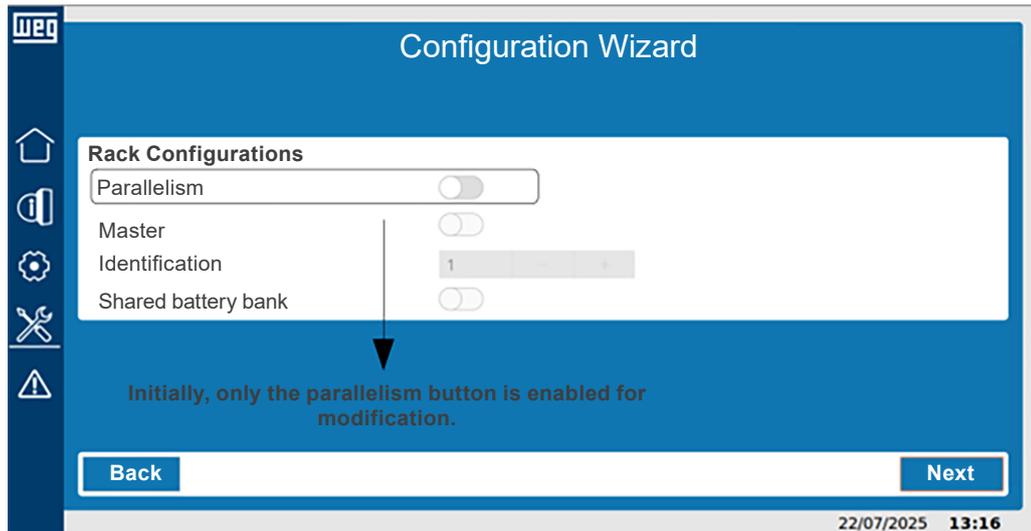


Figure 6.21: Parallel operation enable button

When parallel operation is enabled, the remaining functions become available for configuration as described earlier.

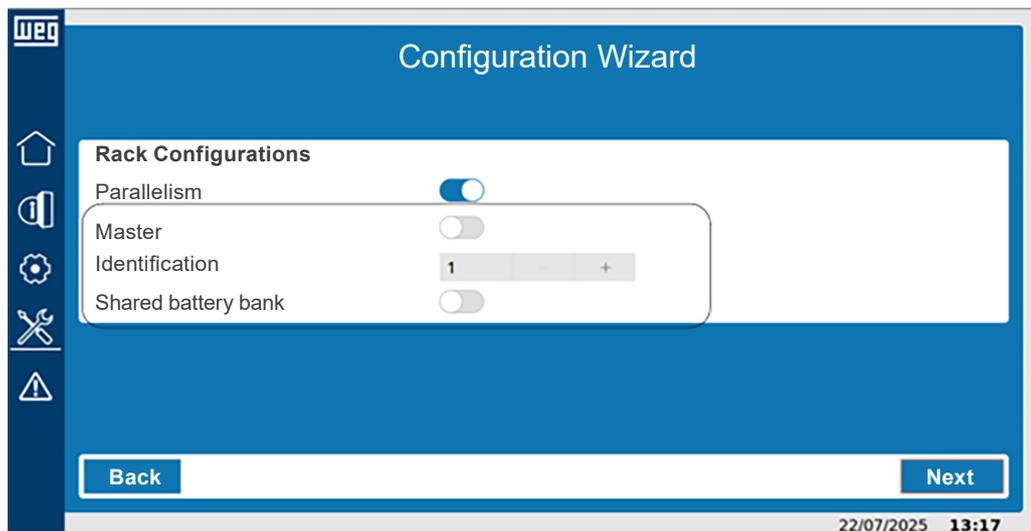


Figure 6.22: Parallel operation enabled

■ Output Settings

This section allows configuration of output parameters according to the requirements of the connected electrical load:

■ Output Voltage:

Selectable standardized values such as 220 V, 230 V, or 240 V, depending on the installation rated voltage or load requirements.

■ Output Frequency:

Defines the output voltage frequency, typically 50 Hz or 60 Hz, depending on the region or application type.

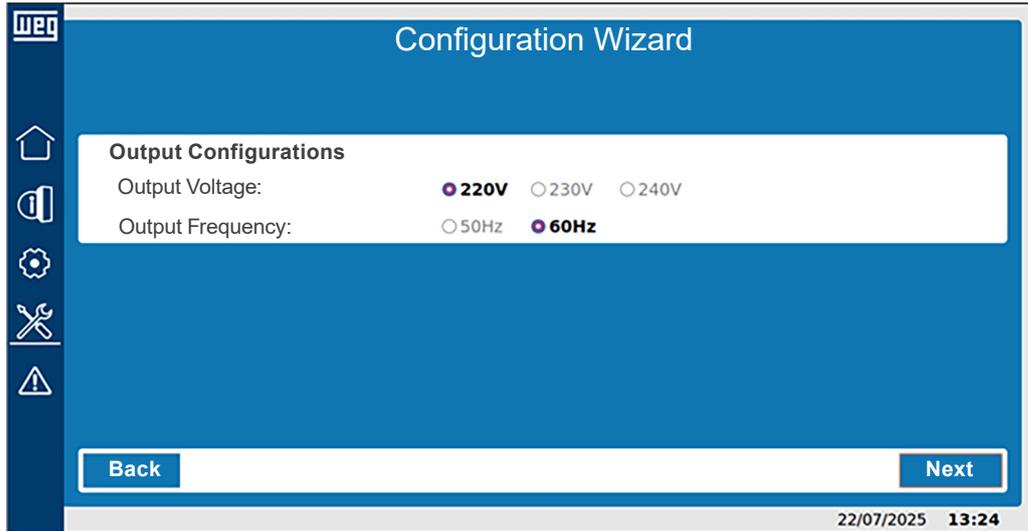


Figure 6.23: Output settings

■ **Battery Bank Settings**

On this screen, the user can configure parameters for the battery bank used as an auxiliary or primary energy source:

■ **Battery bank capacity (Ah):**

Defines the total capacity of the battery bank in ampere-hours, allowing accurate estimation of available runtime and proper charge/discharge management.

■ **Temperature sensor:**

Enables or disables temperature sensor monitoring on the battery bank. This functionality helps prevent overheating and extends battery service life.

■ **Rated voltage (V):**

Defines the battery bank's rated operating voltage according to system design requirements.

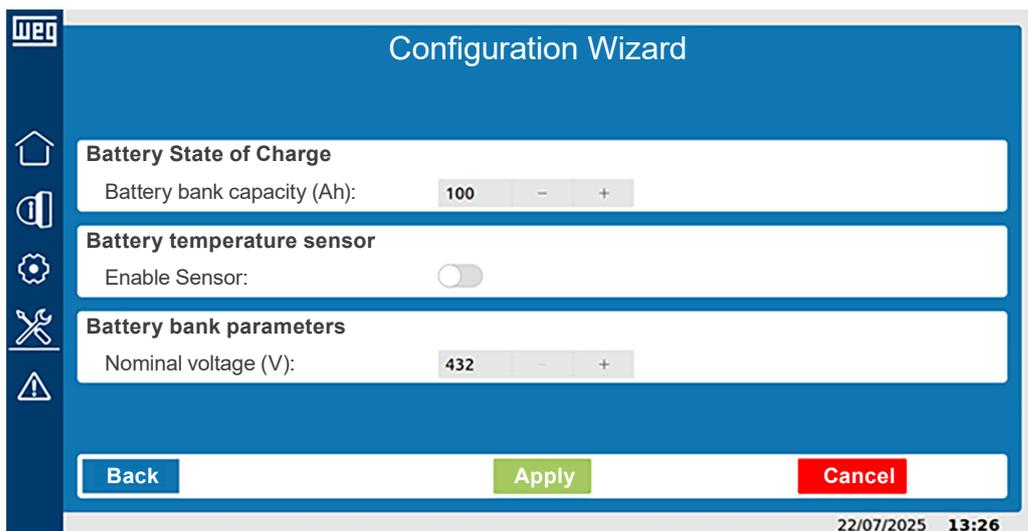


Figure 6.24: Battery bank settings

6.4 SYSTEM NOTIFICATION MENUS

On the alarms screen (Figure 6.25 on page 6-19), it is possible to view the complete event log of the product. On the home screen, the most recent events are displayed, and on the history screen, all events can be viewed with their corresponding date and time.

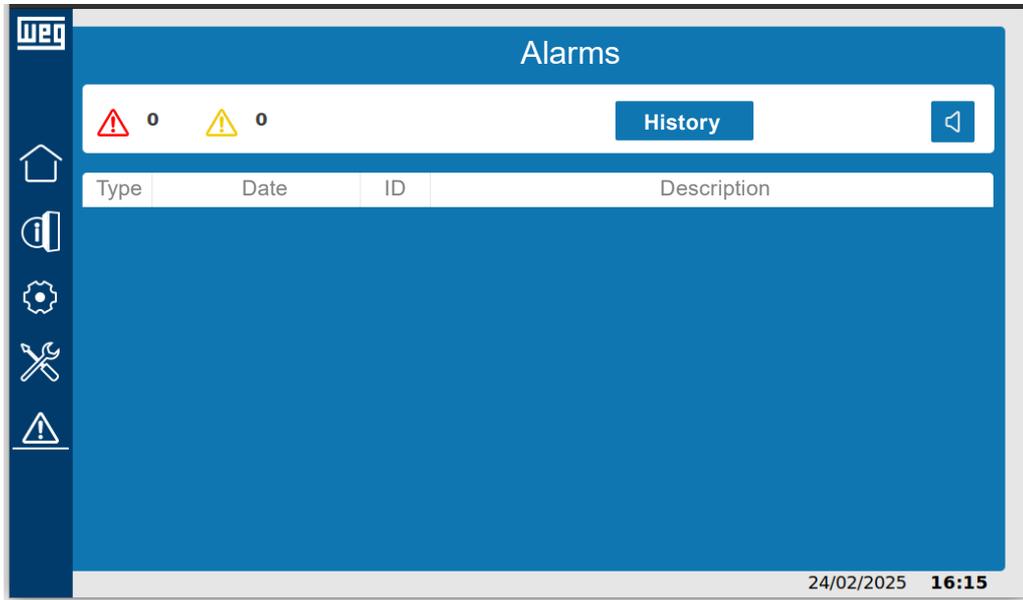


Figure 6.25: Alarm screen

6.5 SYNOPTIC MENU

The product's synoptic diagram is shown both on the main screen and on the operating mode settings screen (Item 6.2.1 Operating Mode Settings Screen on page 6-5). Below are the synoptic power-flow representations for each operating mode. The operating modes are described in Section 3.2 OPERATING MODES on page 3-1.

- OFF mode: Figure 6.26 on page 6-20.
- Normal mode with battery connected: Figure 6.27 on page 6-21.
- Normal mode without battery connected: Figure 6.28 on page 6-21.
- Battery mode (normal mode).
- Automatic *bypass* mode (normal mode).
- ECO mode: Figure 6.30 on page 6-22.
- Manual *bypass*: Figure 6.31 on page 6-22.
- Battery charger: Figure 6.32 on page 6-23.

Table 6.4 on page 6-20 provides the description of the synoptic status.

Table 6.4: Description of the product's synoptic indicators

Variable	Status	Description
Main Input	Off	Utility unavailable
	Solid Green	Utility available and within operating range
	Solid Red	Voltage or frequency out of operating range.
	Flashing Green	Waiting for utility return
Bypass Input	Off	Utility unavailable
	Solid Green	Utility available and within operating range
	Solid Red	Voltage or frequency out of operating range.
Battery Bank	Off	Battery intentionally disconnected
	Solid Green	Battery voltage above 97 % (VRLA > 11.66 V per cell)
	Solid Orange	Battery voltage between 91 % and 97 % (VRLA < 11.66 V and > 11 V per cell)
	Solid Red	Battery voltage below 91 % (VRLA < 11 V per cell)
	Flashing Orange	Battery not present, overvoltage, or reversed polarity.
	Flashing Red	Battery disconnection in progress due to low-voltage disconnect (LVD)
Output	Off	No output voltage
	Solid Green	Output voltage within limits and load below 80 %
	Solid Orange	Output voltage within limits and load between 80 % and 100 %.
	Solid Red	Voltage out of limits or load above 100%
	Flashing Green	Output voltage supplied through <i>bypass</i> , within limits, and load > 80 %
	Flashing Orange	Output voltage supplied through <i>bypass</i> , within limits, and load between 80 % and 100 %
	Flashing Red	Output voltage supplied through <i>bypass</i> , voltage out of limits or load above 100 %

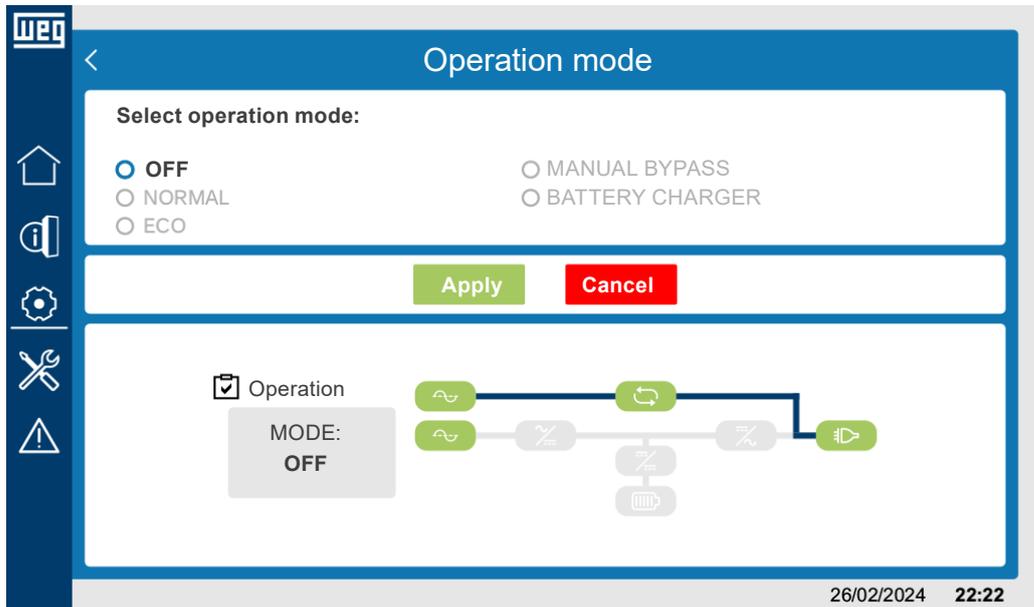


Figure 6.26: Synoptic diagram in OFF mode

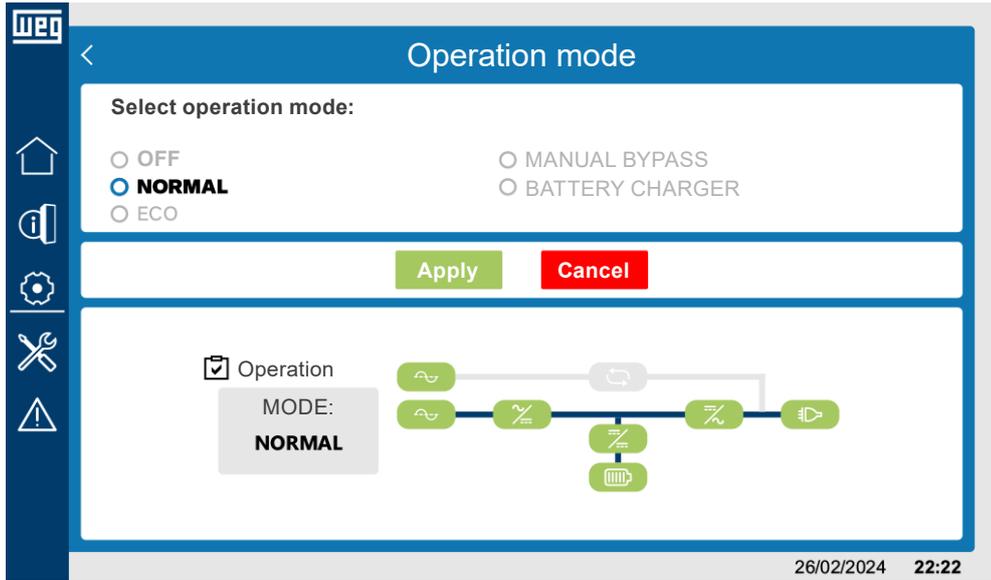


Figure 6.27: Synoptic diagram in normal operating mode with battery connected

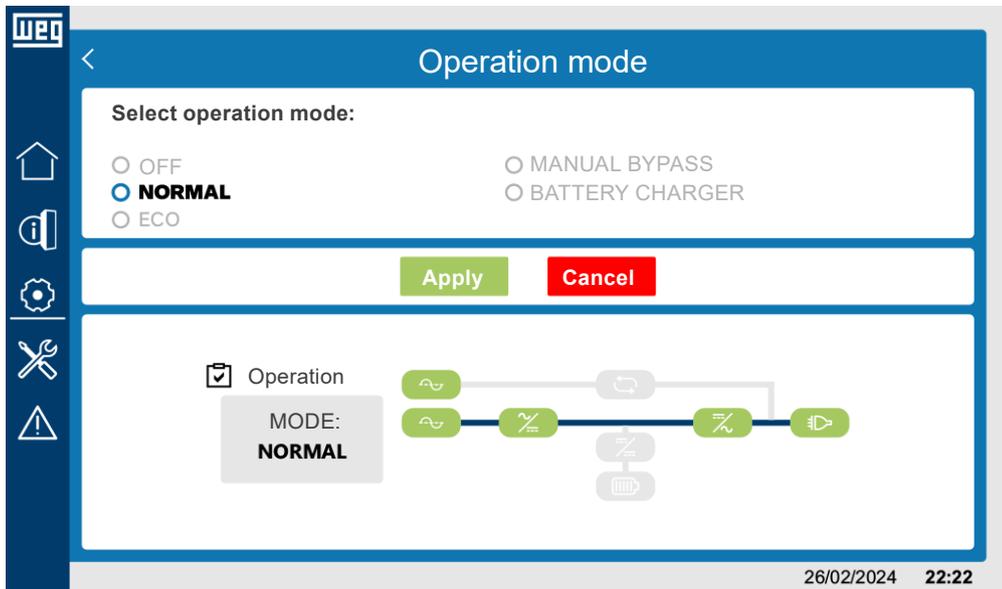


Figure 6.28: Synoptic diagram in normal operating mode without battery connected

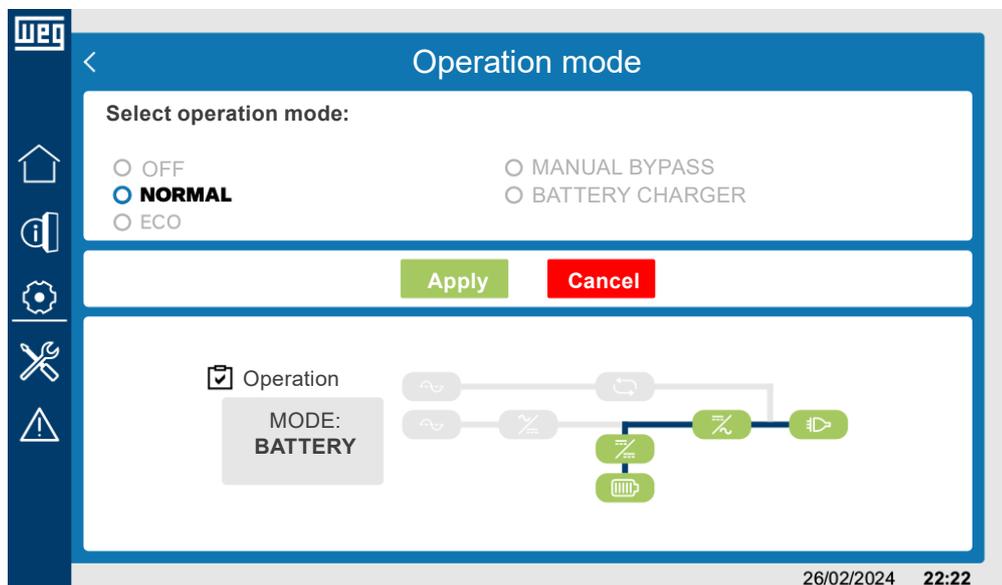


Figure 6.29: Synoptic diagram in normal operating mode powered by battery (battery mode)

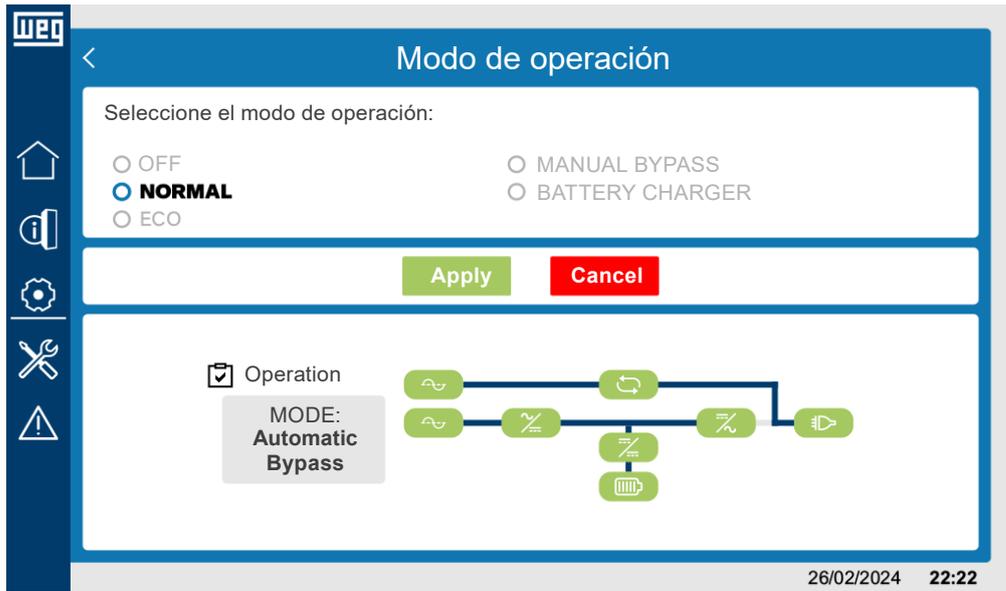


Figure 6.30: Synoptic diagram in normal operating mode powered by the bypass (automatic bypass mode)

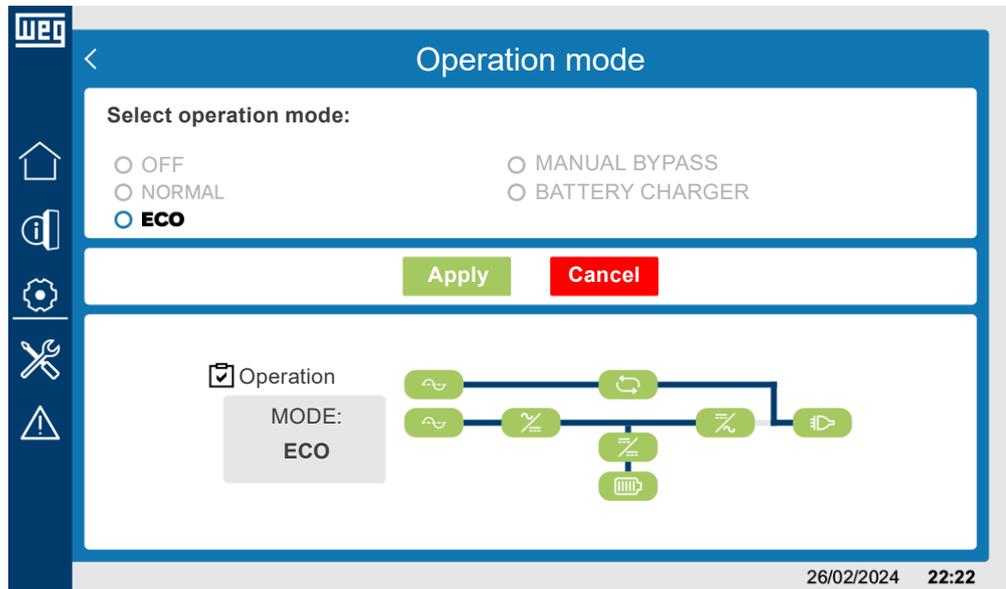


Figure 6.31: Synoptic diagram in ECO operating mode

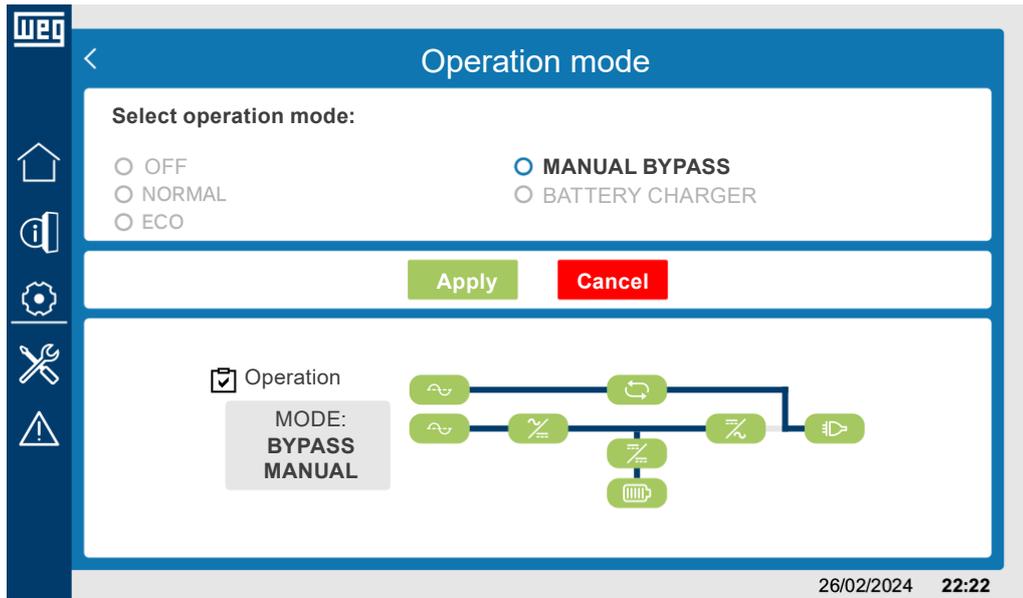


Figure 6.32: Synoptic diagram in manual bypass operating mode

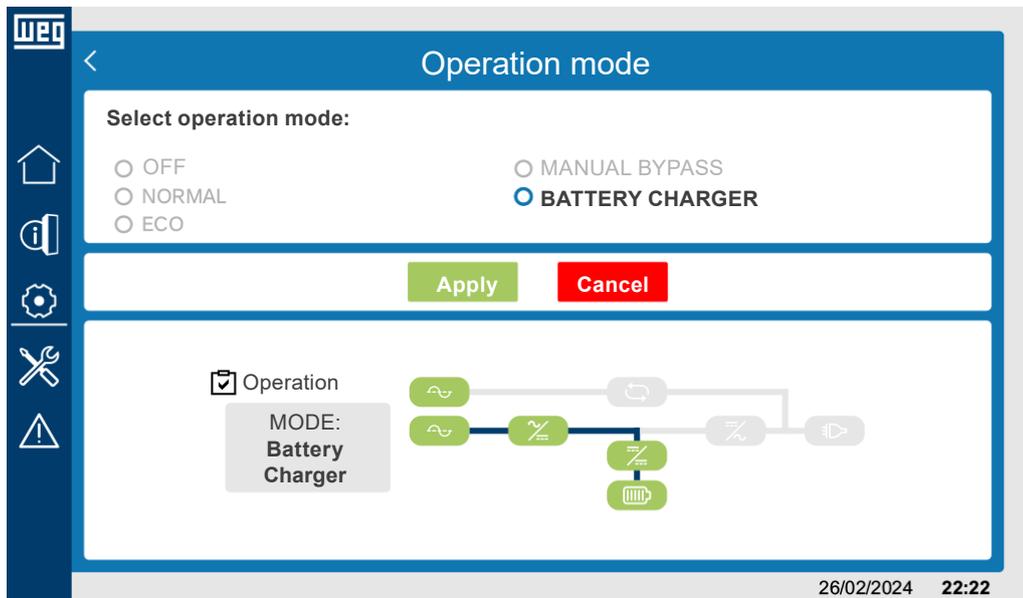


Figure 6.33: Synoptic diagram in battery charger mode

7 PRODUCT OPERATION

This chapter explains:

- How to start up the product and perform the initial setup.
- How to place the product into operation.

7.1 STARTING UP THE PRODUCT

For this startup stage, the UMDW must have already been installed according to the Installation and Connection chapter. Before the next steps, make sure that all connections are correct.

**DANGER!**

Always disconnect the main power supply before performing any connections.

7.1.1 Initial Procedures

Before powering the electronics, it is recommended to use a multimeter to check continuity between phases and neutral of both the main input and the bypass input. Then perform the same check on the battery terminals and the unit output terminals. Remove the bypass module and the power modules for the first energization.

7.1.2 Powering the Electronics

There are two ways to start up the product, that is, two methods to power the product control electronics:

- Powering the main input: the product power supply is energized directly from the main input.
- Powering through the battery voltage (*DC Start*): with this function, the control electronics are powered from the battery DC voltage. For this startup method, the battery bank must have at least 340 V. To turn on the product, press the *ON/OFF* button on the dry-contact module for five seconds.

The HMI will power up together with the management module electronics. Next, insert the bypass module, keeping the module latch in the unlocked position, as shown in [Section 8.2 HOTSWAP REPLACEMENT – BYPASS MODULE on page 8-2](#).

7.2 INITIAL SETTINGS

When the product is powered on for the first time, the HMI *touchscreen* calibration will be prompted.

Initial settings must be performed after the control electronics are energized. The control module will show a steady green LED and a flashing yellow LED. The following settings must be configured.

7.2.1 Date and Time Settings

On the screen shown in [Item 6.2.10 User Settings Screen on page 6-11](#), set the language, time, and optionally change the default factory password. The default password is "123" (without the quotes).

7.2.2 Output and Bypass Settings

On the screen shown in [Item 6.2.4 Product Output Settings Screen on page 6-7](#), set the output voltage and frequency. The tracking rate and automatic reconnection options can also be configured on this screen.

On the bypass settings screen, [Item 6.2.5 Bypass Input Settings Screen on page 6-7](#), configure the bypass voltage and frequency limits.

7.2.3 Battery Bank Settings

On the screen shown in [Item 6.2.6 Battery Bank Settings Screen on page 6-8](#), configure the battery parameters (rated voltage, float voltage, equalization voltage, undervoltage, overvoltage, charging current, overtemperature), the charge and equalization parameters (float current, recharge-start current, maximum constant-current time, maximum constant-voltage time, and transition times between charge modes); enable/disable the temperature sensor; enable/disable thermal compensation and configure according to the battery manufacturer’s specifications; enable/disable the *LVD* function; and configure the battery bank capacity parameters. By default, the *LVD* function is enabled.

[Table 7.1 on page 7-2](#) provides some suggested values for configuring VRLA battery banks.

Table 7.1: Table with the suggested values for VRLA batteries based on the number of batteries

Number of Batteries	Rated Voltage (V)	Float Voltage (V)	Equalization Voltage (V)	Overvoltage (V)	Undervoltage (V)	LVD Voltage (V)
36	432	490	526	540	378	367
38	456	517	555	570	399	388
40	480	544	584	600	420	408
42	504	571	613	630	441	428
44	528	598	642	660	462	449

7.2.4 Parallel Operation Settings

To configure parallel operation, all units must be installed as described in [Item 5.3.9 Rack Parallel Operation Connections on page 5-8](#).

On each unit’s HMI, go to the settings menu described in [Item 6.2.3 Product Parallel Operation Settings Screen on page 6-6](#), and configure each product as shown in [Figure 7.1 on page 7-3](#). The unit with ID 1 must be set as the default master. If all units share the same battery bank, the Shared Battery Bank option must be enabled on all units.

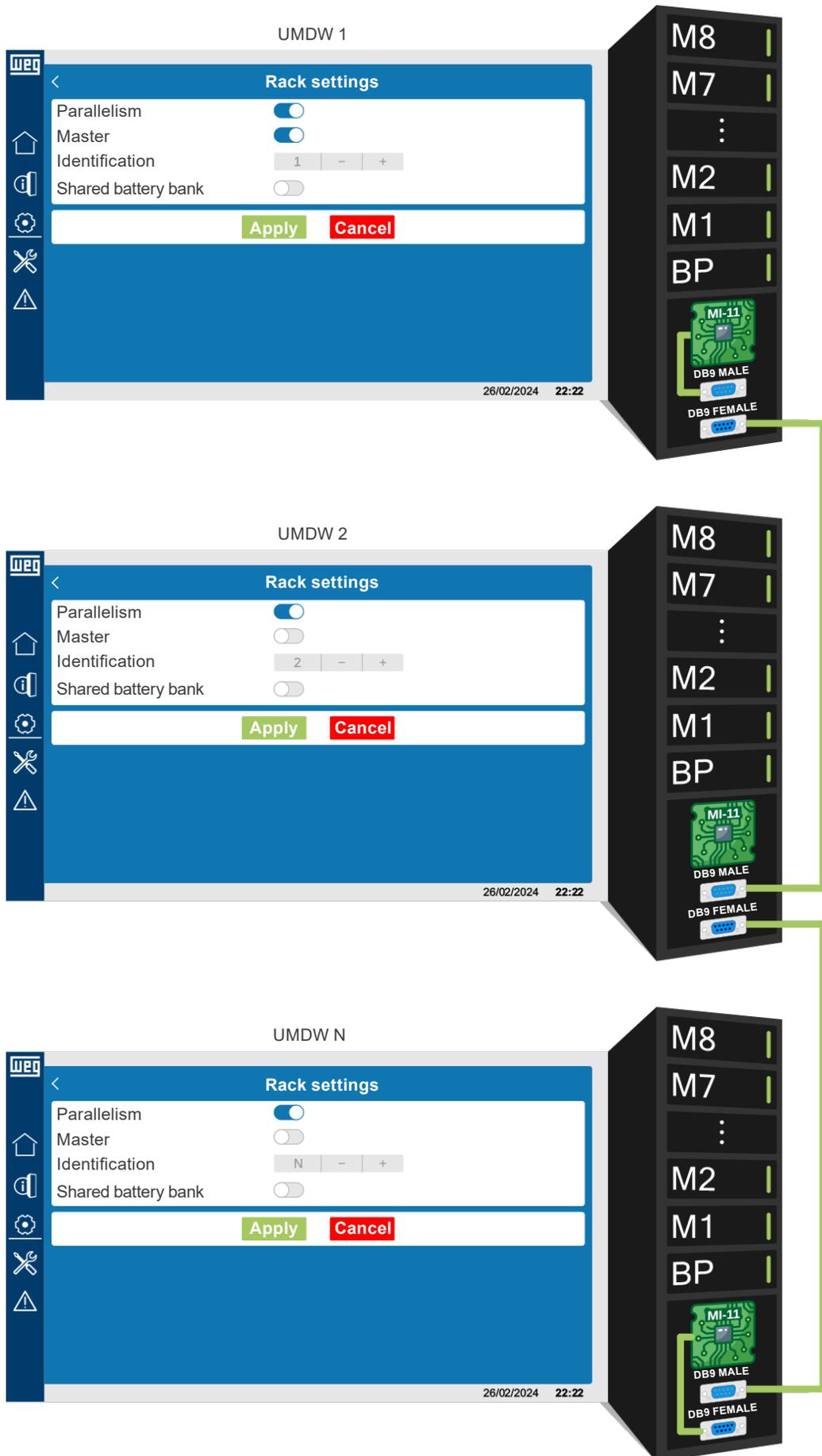


Figure 7.1: Connection and configuration for parallel operation

7.2.5 Power Module Selection Settings

At this stage, reinsert the power modules into the product, leaving the module latches in the unlocked position, as described in [Section 8.1 HOTSWAP REPLACEMENT – POWER MODULE on page 8-1](#).

On the screen shown in [Item 6.2.2 Module Operation Settings Screen on page 6-5](#), select which power modules will operate. This selection must consider the load power and the redundancy level desired by the user.

7.3 UMDW OPERATION

After completing the initial configuration, the product can be placed into operation. Energize the main input, the *bypass* input, and the battery bank.

To select the operating mode, go to the screen shown in [Item 6.2.1 Operating Mode Settings Screen on page 6-5](#). Select the desired operating mode. For the first load energization, it is recommended to select the Off mode first, then change to Normal mode.

Move the hotswap latches of all power and bypass modules to the locked position, as described in [Section 8.1 HOTSWAP REPLACEMENT – POWER MODULE on page 8-1](#) and [Section 8.2 HOTSWAP REPLACEMENT – BYPASS MODULE on page 8-2](#), respectively. The product is now ready to supply the load.

7.4 MODULE INDICATIONS

The LED *status* of each module is described in the following sections.

7.4.1 Control Module

The control module has three LEDs: a red LED (Fault), a yellow LED (Warning), and a green LED (Normal). [Table 7.2 on page 7-4](#), shows the description for each LED status.

Table 7.2: Description of LED status on the control module

Status	Description
Solid green	Control module active and operating
Flashing green	Redundant control module
Solid yellow	Main input or bypass failure, overload, or LVD process in progress
Flashing yellow	Initialization in progress
Solid red	Forced shutdown of the product output
Flashing red	<i>Hotswap</i> switch unlocked. Module switched off

7.4.2 Power Supply and Protection Module

The protection and power supply module has two LEDs: one red (labeled Fault) and one green (labeled Normal). [Table 7.3 on page 7-4](#) shows the description of each LED status.

Table 7.3: LED status descriptions for the power supply and protection module

Status	Description
Solid green	Power supply operating normally
Solid red	Blown fuse or missing input phase

7.4.3 Bypass Module

The bypass module has four LEDs: one red (labeled Fault), one yellow (labeled Warning), one green (labeled Normal), and one blue (labeled Lock). [Table 7.4 on page 7-5](#) describes each LED status.

Table 7.4: LED status descriptions for the bypass module

Status	Description
Solid green	<i>Bypass</i> module active
Flashing green	<i>Bypass</i> module in standby
Solid yellow	Internal communication warning
Solid red	Module fault
Solid blue	Module in locked position (<i>hotswap</i>)
Flashing blue	<i>Firmware</i> update in progress
All off	Module in extract position (<i>hotswap</i>)

7.4.4 Power Module

The power module has four LEDs: one red (labeled Fault), one yellow (labeled Warning), one green (labeled Normal), and one blue (labeled Lock). [Table 7.5 on page 7-5](#) describes each LED status.

Table 7.5: LED status descriptions for the power module

Status	Description
Solid green	Module operating normally
Flashing green	Power module with inverter in
Solid yellow	Internal communication warning
Flashing yellow	Protection warning
Solid red	Module fault
Solid blue	Module in locked position (<i>hotswap</i>)
Flashing blue	<i>Firmware</i> update in progress
All off	Module in extract position (<i>hotswap</i>)

7.5 HMI INDICATIONS

The product HMI displays the *status* of the power modules and the *bypass* module, as shown in [Figure 7.2 on page 7-6](#).

- *Slots* without a module installed: shown as a black *slots* on the HMI, as in power module 8 (M8) in [Figure 7.2 on page 7-6](#).
- Module installed but *hotswap* latch unlocked: when the module is inserted and initialized but the *hotswap* latch is in the unlocked position, it is shown with an open-padlock icon and its LED turned off, as in power module 7 (M7) in [Figure 7.2 on page 7-6](#).
- Locked and operating module: a module with the *hotswap* latch in the locked position and operating normally is indicated by its *rack* position number and the LED color corresponding to its *status*. For example, power module 6 (M6), operating normally with no alarms or faults, is shown in [Figure 7.2 on page 7-6](#).

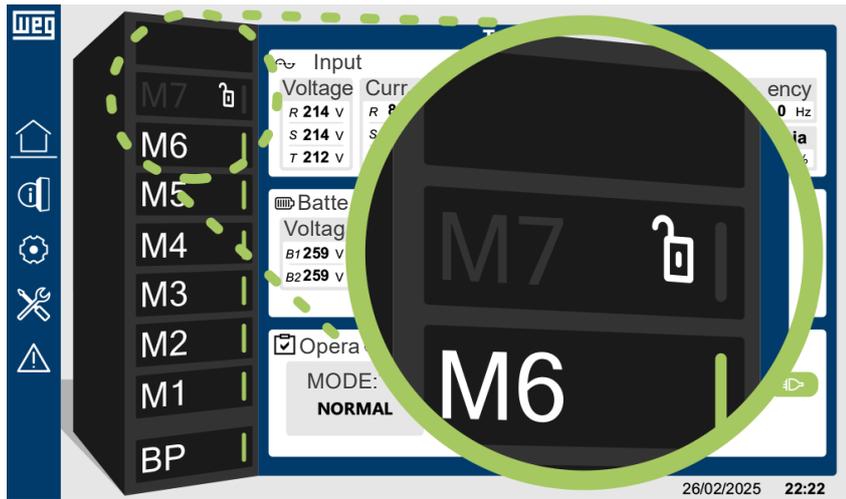


Figure 7.2: HMI indications of the module status

8 PREVENTIVE MAINTENANCE

To ensure correct operation of the UMDW equipment and extend its service life, periodic preventive maintenance is recommended. The following procedures must be performed by trained and authorized technicians:

- Event log inspection: check the product event log weekly to identify recurring alarms or faults.
- Routine visual inspection: check the general condition of the equipment, including connections, cables, and external components. Ensure there are no signs of physical damage, corrosion, or dust accumulation. Perform it monthly or quarterly depending on environmental dust levels.
- Equipment cleaning: clean the equipment periodically to remove dust and debris that could obstruct ventilation. Recommended every six months.
- Electrical connection check: verify the tightness of all electrical connections to avoid poor contact. Inspect terminals and cables for overheating, wear, or insulation damage. Recommended every six months.
- *Firmware* updates: check for available *firmware* updates that may add new functions or product improvements.
- Fan inspection: inspect cooling fans to ensure proper operation. Fans with rotation failure generate an alarm event in the corresponding module. Replace fans showing wear or malfunction.
- Redundancy and operation test: perform tests to ensure that redundant or standby modules are working properly.
- Battery bank replacement: the equipment has no internal batteries, but proper operation in battery mode requires the external battery bank to be correctly maintained. The UMDW includes a battery-disconnection function for safe handling.

8.1 HOTSWAP REPLACEMENT – POWER MODULE

In case of a power module failure, replacement can be performed with the product running due to its modular design.

Before hot-swapping a power module, ensure that the remaining modules can support the load demand. If not, the bypass module must be available and operational to temporarily supply the load.

Once this is verified, move the hotswap latch from the locked position ([Figure 8.1 on page 8-2](#)) to the unlocked position ([Figure 8.2 on page 8-2](#)).

The module's blue LED will turn off, indicating that it can be removed. Lift the safety latch to extract the module.



Figure 8.1: Power module with the hotswap latch in the locked position



Figure 8.2: Power module with the hotswap latch in the unlocked position

8.2 HOTSWAP REPLACEMENT – BYPASS MODULE

The bypass module can also be replaced while the product is operating. Similar to the power module procedure, ensure that the remaining power modules are sufficient to withstand the load.

To remove the bypass module, move the hotswap latch from the locked position ([Figure 8.3 on page 8-3](#)) to the unlocked position ([Figure 8.4 on page 8-3](#)). The module's blue LED will turn off, indicating that it can be removed. Lift the safety latch to extract the module.



Figure 8.3: Bypass module with the hotswap latch in the locked position



Figure 8.4: Bypass module with the hotswap latch in the unlocked position

8.3 HOTSWAP REPLACEMENT – CONTROL MODULE

To replace the control module, follow these steps:

- Verify that the bypass module is present and operational.
- Insert the new control module into the redundant slot. Lock the module as shown in [Figure 8.5 on page 8-4](#). The inserted module will initialize, and the yellow LED will flash.
- After initialization is complete, the yellow LED turns off, and the green LED begins flashing. It is only possible to replace the desired module after initialization.
- Move the hotswap latch of the module to be replaced to the unlocked position as shown in [Figure 8.6 on page 8-4](#). The LED on this module will flash red, and the green LED on the redundant module will change from flashing green to solid green.
- Remove the module and install the blank cover on the corresponding slot to complete the process.



Figure 8.5: Control module with the hotswap latch in the locked position



Figure 8.6: Control module with the hotswap latch in the unlocked position

8.4 HOTSWAP REPLACEMENT – POWER SUPPLY AND PROTECTION MODULE

When the red LED on the power supply and protection module is lit, the following points must be checked:

- Ensure that all input phases are present. If all phases are correct, the problem may be related to a blown fuse inside the module. In this case, replace the module immediately.
- On the human-machine interface (HMI), verify that the fault of the protection and power supply module has been registered on the event history.

The module can be replaced with the equipment operating, provided that a specific sequence is strictly followed to ensure proper functionality.

- Insert the new protection and power supply module in the available redundant slot. If the product already has two modules installed, the failed module may be replaced without further action. If both modules show a fault, ensure that the bypass module is present and operating before replacing these components.
- To remove the module, remove the two M3 fixing screws, as shown in [Figure 8.7 on page 8-5](#). This module does not have a hotswap latch for identification, so the steps above must be followed rigorously to avoid impacting the product operation.

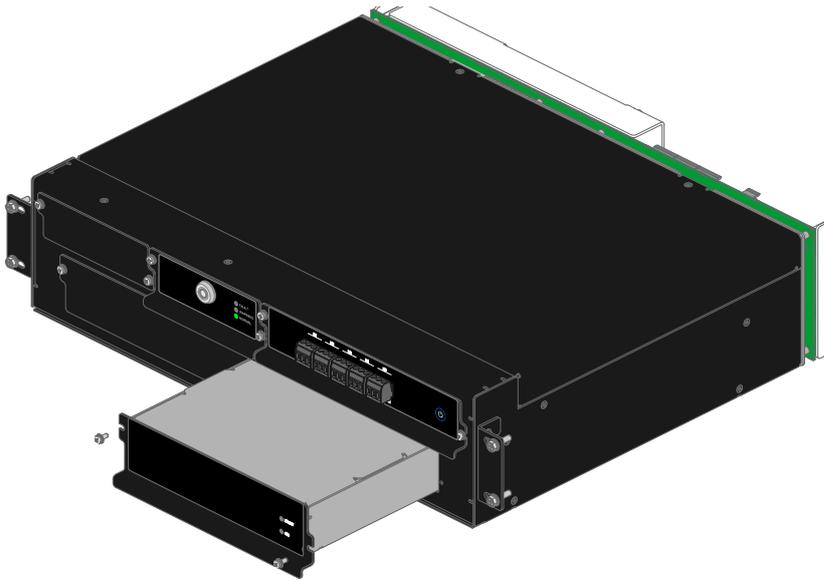


Figure 8.7: Replacing the protection power supply and protection module of the management module

8.5 HOTSWAP REPLACEMENT – DRY-CONTACT MODULE

The dry-contact module of the management module can be easily replaced by simply removing the two M3 fixing screws.

 **ATTENTION!** Before replacing the dry-contact module, put the product in maintenance *bypass* mode. Removing the module forces the equipment into emergency mode, which may lead to load interruption.

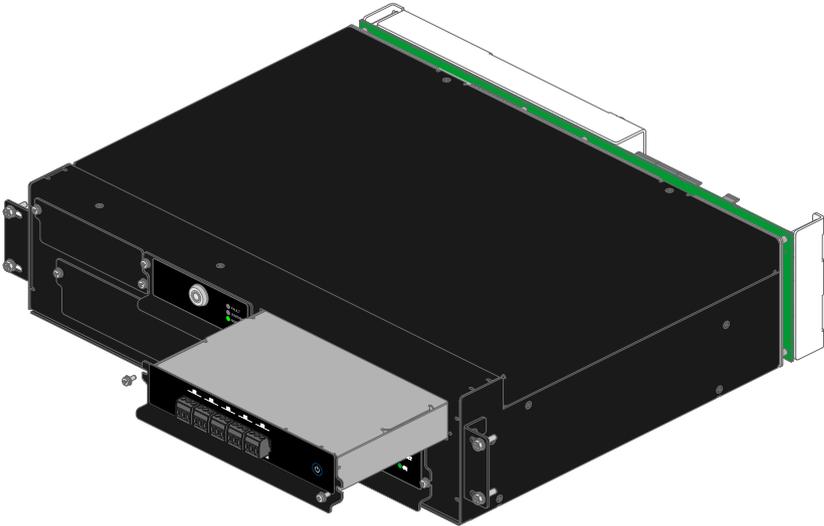


Figure 8.8: Replacement of the dry-contact module of the management module

8.6 FIRMWARE UPDATE PROCEDURE

To update the product *firmware* while operating, the maintenance bypass switch must be activated. Then access the maintenance screen ([Section 6.3 MAINTENANCE MENU on page 6-14](#)) and select the *firmware* update option.

All modules will be updated. During the update process, the blue LED on the modules will flash, indicating that they are being updated. After the update is complete, turn off the maintenance *bypass* switch. The product will remain in a shutdown state (static *bypass* module activated) until the user selects the desired operating mode on the HMI.

When a module with *firmware* version different from the modules in operation is inserted, the module's *firmware* will be automatically updated to align with the operating versions. This may result in a *downgrade* or *upgrade* of the module's *firmware*.

Note regarding parallel rack operation:

When the racks are operating in parallel, the use of an external maintenance *bypass* is mandatory to perform the update procedure safely. If the external *bypass* is not available, there is no guarantee that the transferred load will not exceed the system limit (since the switches must be operated individually).



ATTENTION!

When the racks are operating in parallel, the use of an external maintenance *bypass* is mandatory to perform the update procedure safely. If the external *bypass* is not available, there is no guarantee that the transferred load will not exceed the system limit (since the switches must be operated individually).

8.7 DISCONNECTING THE BATTERY FOR MAINTENANCE

To perform maintenance on the product's battery bank, it is possible to disconnect the battery from the product. This option is available on the maintenance screen ([Section 6.3 MAINTENANCE MENU on page 6-14](#)). In this condition, the product will continue to power the load, but backup support from the battery bank will not be available.



ATTENTION!

To preserve battery performance and warranty, do not keep the equipment turned off for more than 4 months. If it must remain unused for a long period, power the equipment at least once every 4 months with the batteries connected. This will recharge them and prevent premature aging.



DANGER!

Immediately disconnect the battery bank from the equipment if any fault or abnormal behavior is detected, such as: voltage fluctuations, battery voltage significantly lower or higher (10 % above or below the average of the other cells), swollen batteries, smoke or signs of fire, repeated or persistent low-battery or high-battery alarms, repeated failures in the battery-bank test.

9 PRODUCT SPECIFICATIONS

9.1 BASIC PRODUCT INFORMATION

Table 9.1: Basic product information

Basic Product Information			
Frame	UMDW Frame I	UMDW Frame II	UMDW Frame III
Output Power (kVA)	75	125	200
Dimensions (Height x Width x Depth)	2000 x 600 x 800 mm [78.74 x 23.62 x 31.50 pol]		
Parallel Operation	Up to 8 products		
Protection Rating	IP21 (includes accessories)		
Ambient Temperature	0 to +40 °C [0 to +104 °F]		
Air Relative Humidity	5 % to 95 % non-condensing		
Noise Level at 1 Meter	65 to 70 dBA		
Altitude	Up to 1000 m above sea level (above that with <i>derating</i>) ⁽¹⁾		
Storage Temperature	0 to 70 °C [0 to 158 °F]		
Operating Environment	Internal, sheltered, free of inflammable and/or corrosive gases		
Grounding System	TN, TT or IT		
Cable Exit	Cable exit through the bottom of the panel		
Human-Machine Interface	7-inch <i>touchscreen</i>		
Efficiency	Up to 95.5 % <i>online</i> and 99 % in ECOMODE		
Ef100	95.0 %	95.1 %	95.3 %
Ef75	95.3 %	95.4 %	95.5 %
Ef50	95.0 %	95.1 %	95.3 %
Ef25	94.0 %	94.1 %	94.3 %

(1) From 1000 m to 4000 m (3,300 ft to 13,200 ft), consider 1 % derating in the consumer current for each 100 m above 1000 m of altitude.

9.2 PRODUCT RECTIFIER INFORMATION

Table 9.2: Product rectifier information

Product Rectifier Information			
Frame	UMDW Frame I	UMDW Frame II	UMDW Frame III
Number of Cables	3 phases + Neutral		
Input Voltage Range	185-275 V (L-N) (<i>no derating</i>)		
Current at 380 V (L-L) (A)	120	200	325
Current at 415 V (L-L) (A)	110	183	290
Power Factor	≥0.99		
Current Harmonic Distortion (THDi)	<3 %		
Input Frequency	Nominal 50/60 Hz, (operating range 40 to 70 Hz)		
Compatible with Generator Unit	Yes		
Short-Circuit Capacity	35 kA @ 415 V		

9.3 PRODUCT INVERTER INFORMATION

Table 9.3: Product inverter information

Product Inverter Information			
Frame	UMDW Frame I	UMDW Frame II	UMDW Frame III
Number of Cables	3 phases + Neutral		
Rated Phase Voltage (V) (L-N)	220/230/240		
Static Voltage Regulation	±1 %		
Operating Frequency	50 or 60 Hz		
Total Voltage Harmonic Distortion (THDv)	<3 % for linear load and < 5 % for non-linear load		
Rated Current (A) (220 V L-N)	113.6	189.4	303
Rated Current (A) (230 V L-N)	108.7	181.2	289.9
Rated Current (A) (240 V L-N)	104.2	173.6	277.8
Crest Factor	03:01		
Load Step Regulation	Class 1 – according to IEC 62040-3		
Overload Capacity <110 %	Continuous duty		
Overload Capacity: ≥125 % <150 %	10 minutes		
Overload Capacity: ≥150 %	1 minute		

9.4 PRODUCT BATTERY BANK INFORMATION

Table 9.4: Product battery bank information

UPS Battery Bank Information	
Number of Cables	3 cables (positive, neutral and negative)
Equipped with Internal Batteries	No
Number of VRLA Batteries	36 to 44 batteries
Rated Voltage (V) VRLA	432 (36 batteries)
Maximum Equalization Voltage (V) – VRLA	633 (44 batteries) 14.4 V per battery
Maximum Float Voltage (V) – VRLA	598 (44 batteries) 13.6 V per battery
Minimum Voltage (V) VRLA	378 (36 batteries) 10.5 V per battery
Cold Start	Yes
Compatible Battery Types	VRLA / NiCd / Lithium-ion
Maximum Charging Current per Module	10 A

9.5 PRODUCT BYPASS INFORMATION

Table 9.5: Product bypass information

UPS Bypass Information	
Number of Cables	3 phases + Neutral
Type of Automatic Bypass	Static switch
Maintenance Bypass Switch	Internal manual switch
Bypass Input	Can be independent from the main input or share the same power source
Bypass Transfer Time	0 ms
Short-Circuit Capacity (kA)	35 kA @ 415 V
Overload Capacity <125 %	Continuous duty
Overload Capacity: ≥125 % <150 %	30 minutes
Overload Capacity: ≥150 % <200 %	5 minutes
Overload Capacity: ≥200 % <400 %	30 seconds
Overload Capacity: ≥400 %	20 milliseconds

9.6 ADDITIONAL INFORMATION

Table 9.6: International standards

International Standards	
Safety, EMC and Performance Standards	<i>Safety: IEC 62040-1 – Uninterruptible Power Systems (UPS) – Part 1: General and safety requirements for UPS</i>
	<i>EMC: IEC 62040-2 – Uninterruptible Power Systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements</i>
	<i>Performance: IEC 62040-3 – Uninterruptible Power Systems (UPS) – Part 3: Method of Specifying the Performance and Test Requirements</i>

APPENDIX A - MODBUS ADDRESS TABLES

Table A.1: Description of MODBUS variables and their respective IDs

ID	Variable Description	Multiplier	Type	Unit
1	AC mains RMS voltage (R) - Power module 1	10	uint16	V
2	AC mains RMS voltage (R) - Power module 2	10	uint16	V
3	AC mains RMS voltage (R) - Power module 3	10	uint16	V
4	AC mains RMS voltage (R) - Power module 4	10	uint16	V
5	AC mains RMS voltage (R) - Power module 5	10	uint16	V
6	AC mains RMS voltage (R) - Power module 6	10	uint16	V
7	AC mains RMS voltage (R) - Power module 7	10	uint16	V
8	AC mains RMS voltage (R) - Power module 8	10	uint16	V
21	AC mains RMS voltage (R) - Control module	10	uint16	V
22	AC backup mains RMS voltage (R) - Control module	10	uint16	V
31	AC rectifier RMS voltage (R) - Power module 1	10	uint16	V
32	AC rectifier RMS voltage (R) - Power module 2	10	uint16	V
33	AC rectifier RMS voltage (R) - Power module 3	10	uint16	V
34	AC rectifier RMS voltage (R) - Power module 4	10	uint16	V
35	AC rectifier RMS voltage (R) - Power module 5	10	uint16	V
36	AC rectifier RMS voltage (R) - Power module 6	10	uint16	V
37	AC rectifier RMS voltage (R) - Power module 7	10	uint16	V
38	AC rectifier RMS voltage (R) - Power module 8	10	uint16	V
51	AC output RMS voltage (R) - Power module 1	10	uint16	V
52	AC output RMS voltage (R) - Power module 2	10	uint16	V
53	AC output RMS voltage (R) - Power module 3	10	uint16	V
54	AC output RMS voltage (R) - Power module 4	10	uint16	V
55	AC output RMS voltage (R) - Power module 5	10	uint16	V
56	AC output RMS voltage (R) - Power module 6	10	uint16	V
57	AC output RMS voltage (R) - Power module 7	10	uint16	V
58	AC output RMS voltage (R) - Power module 8	10	uint16	V
66	AC output RMS voltage (R) - Control module	10	uint16	V
71	AC inverter RMS voltage (R) - Power module 1	10	uint16	V
72	AC inverter RMS voltage (R) - Power module 2	10	uint16	V
73	AC inverter RMS voltage (R) - Power module 3	10	uint16	V
74	AC inverter RMS voltage (R) - Power module 4	10	uint16	V
75	AC inverter RMS voltage (R) - Power module 5	10	uint16	V
76	AC inverter RMS voltage (R) - Power module 6	10	uint16	V
77	AC inverter RMS voltage (R) - Power module 7	10	uint16	V
78	AC inverter RMS voltage (R) - Power module 8	10	uint16	V
101	AC mains RMS voltage (S) - Power module 1	10	uint16	V
102	AC mains RMS voltage (S) - Power module 2	10	uint16	V
103	AC mains RMS voltage (S) - Power module 3	10	uint16	V
104	AC mains RMS voltage (S) - Power module 4	10	uint16	V
105	AC mains RMS voltage (S) - Power module 5	10	uint16	V
106	AC mains RMS voltage (S) - Power module 6	10	uint16	V
107	AC mains RMS voltage (S) - Power module 7	10	uint16	V
108	AC mains RMS voltage (S) - Power module 8	10	uint16	V
116	AC mains RMS voltage (S) - Control module	10	uint16	V
117	AC backup mains RMS voltage (S) - Control module	10	uint16	V
131	AC rectifier RMS voltage (S) - Power module 1	10	uint16	V

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
132	AC rectifier RMS voltage (S) - Power module 2	10	uint16	V
133	AC rectifier RMS voltage (S) - Power module 3	10	uint16	V
134	AC rectifier RMS voltage (S) - Power module 4	10	uint16	V
135	AC rectifier RMS voltage (S) - Power module 5	10	uint16	V
136	AC rectifier RMS voltage (S) - Power module 6	10	uint16	V
137	AC rectifier RMS voltage (S) - Power module 7	10	uint16	V
138	AC rectifier RMS voltage (S) - Power module 8	10	uint16	V
151	AC output RMS voltage (S) - Power module 1	10	uint16	V
152	AC output RMS voltage (S) - Power module 2	10	uint16	V
153	AC output RMS voltage (S) - Power module 3	10	uint16	V
154	AC output RMS voltage (S) - Power module 4	10	uint16	V
155	AC output RMS voltage (S) - Power module 5	10	uint16	V
156	AC output RMS voltage (S) - Power module 6	10	uint16	V
157	AC output RMS voltage (S) - Power module 7	10	uint16	V
158	AC output RMS voltage (S) - Power module 8	10	uint16	V
166	AC output RMS voltage (S) - Control module	10	uint16	V
171	AC inverter RMS voltage (S) - Power module 1	10	uint16	V
172	AC inverter RMS voltage (S) - Power module 2	10	uint16	V
173	AC inverter RMS voltage (S) - Power module 3	10	uint16	V
174	AC inverter RMS voltage (S) - Power module 4	10	uint16	V
175	AC inverter RMS voltage (S) - Power module 5	10	uint16	V
176	AC inverter RMS voltage (S) - Power module 6	10	uint16	V
177	AC inverter RMS voltage (S) - Power module 7	10	uint16	V
178	AC inverter RMS voltage (S) - Power module 8	10	uint16	V
201	AC mains RMS voltage (T) - Power module 1	10	uint16	V
202	AC mains RMS voltage (T) - Power module 2	10	uint16	V
203	AC mains RMS voltage (T) - Power module 3	10	uint16	V
204	AC mains RMS voltage (T) - Power module 4	10	uint16	V
205	AC mains RMS voltage (T) - Power module 5	10	uint16	V
206	AC mains RMS voltage (T) - Power module 6	10	uint16	V
207	AC mains RMS voltage (T) - Power module 7	10	uint16	V
208	AC mains RMS voltage (T) - Power module 8	10	uint16	V
216	AC mains RMS voltage (T) - Control module	10	uint16	V
217	AC backup mains RMS voltage (T) - Control module	10	uint16	V
231	AC rectifier RMS voltage (T) - Power module 1	10	uint16	V
232	AC rectifier RMS voltage (T) - Power module 2	10	uint16	V
233	AC rectifier RMS voltage (T) - Power module 3	10	uint16	V
234	AC rectifier RMS voltage (T) - Power module 4	10	uint16	V
235	AC rectifier RMS voltage (T) - Power module 5	10	uint16	V
236	AC rectifier RMS voltage (T) - Power module 6	10	uint16	V
237	AC rectifier RMS voltage (T) - Power module 7	10	uint16	V
238	AC rectifier RMS voltage (T) - Power module 8	10	uint16	V
251	AC output RMS voltage (T) - Power module 1	10	uint16	V
252	AC output RMS voltage (T) - Power module 2	10	uint16	V
253	AC output RMS voltage (T) - Power module 3	10	uint16	V
254	AC output RMS voltage (T) - Power module 4	10	uint16	V
255	AC output RMS voltage (T) - Power module 5	10	uint16	V
256	AC output RMS voltage (T) - Power module 6	10	uint16	V

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
257	AC output RMS voltage (T) - Power module 7	10	uint16	V
258	AC output RMS voltage (T) - Power module 8	10	uint16	V
266	AC output RMS voltage (T) - Control module	10	uint16	V
271	AC inverter RMS voltage (T) - Power module 1	10	uint16	V
272	AC inverter RMS voltage (T) - Power module 2	10	uint16	V
273	AC inverter RMS voltage (T) - Power module 3	10	uint16	V
274	AC inverter RMS voltage (T) - Power module 4	10	uint16	V
275	AC inverter RMS voltage (T) - Power module 5	10	uint16	V
276	AC inverter RMS voltage (T) - Power module 6	10	uint16	V
277	AC inverter RMS voltage (T) - Power module 7	10	uint16	V
278	AC inverter RMS voltage (T) - Power module 8	10	uint16	V
301	AC mains RMS current (R) - Power module 1	10	uint16	A
302	AC mains RMS current (R) - Power module 2	10	uint16	A
303	AC mains RMS current (R) - Power module 3	10	uint16	A
304	AC mains RMS current (R) - Power module 4	10	uint16	A
305	AC mains RMS current (R) - Power module 5	10	uint16	A
306	AC mains RMS current (R) - Power module 6	10	uint16	A
307	AC mains RMS current (R) - Power module 7	10	uint16	A
308	AC mains RMS current (R) - Power module 8	10	uint16	A
315	AC backup mains RMS current (R) - <i>Bypass</i> module	10	uint16	A
316	AC mains RMS current (R) - Control module	10	uint16	A
341	AC output RMS current (R) - Power module 1	10	uint16	A
342	AC output RMS current (R) - Power module 2	10	uint16	A
343	AC output RMS current (R) - Power module 3	10	uint16	A
344	AC output RMS current (R) - Power module 4	10	uint16	A
345	AC output RMS current (R) - Power module 5	10	uint16	A
346	AC output RMS current (R) - Power module 6	10	uint16	A
347	AC output RMS current (R) - Power module 7	10	uint16	A
348	AC output RMS current (R) - Power module 8	10	uint16	A
356	AC output RMS current (R) - Control module	10	uint16	A
357	AC output RMS current - Rack Sensor (R) - Control module	10	uint16	A
361	AC inverter RMS current (R) - Power module 1	10	uint16	A
362	AC inverter RMS current (R) - Power module 2	10	uint16	A
363	AC inverter RMS current (R) - Power module 3	10	uint16	A
364	AC inverter RMS current (R) - Power module 4	10	uint16	A
365	AC inverter RMS current (R) - Power module 5	10	uint16	A
366	AC inverter RMS current (R) - Power module 6	10	uint16	A
367	AC inverter RMS current (R) - Power module 7	10	uint16	A
368	AC inverter RMS current (R) - Power module 8	10	uint16	A
401	AC mains RMS current (S) - Power module 1	10	uint16	A
402	AC mains RMS current (S) - Power module 2	10	uint16	A
403	AC mains RMS current (S) - Power module 3	10	uint16	A
404	AC mains RMS current (S) - Power module 4	10	uint16	A
405	AC mains RMS current (S) - Power module 5	10	uint16	A
406	AC mains RMS current (S) - Power module 6	10	uint16	A
407	AC mains RMS current (S) - Power module 7	10	uint16	A
408	AC mains RMS current (S) - Power module 8	10	uint16	A
415	AC backup mains RMS current (S) - <i>Bypass</i> module	10	uint16	A

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
416	AC mains RMS current (S) - Control module	10	uint16	A
441	AC output RMS current (S) - Power module 1	10	uint16	A
442	AC output RMS current (S) - Power module 2	10	uint16	A
443	AC output RMS current (S) - Power module 3	10	uint16	A
444	AC output RMS current (S) - Power module 4	10	uint16	A
445	AC output RMS current (S) - Power module 5	10	uint16	A
446	AC output RMS current (S) - Power module 6	10	uint16	A
447	AC output RMS current (S) - Power module 7	10	uint16	A
448	AC output RMS current (S) - Power module 8	10	uint16	A
456	AC output RMS current (S) - Control module	10	uint16	A
457	AC output RMS current - Rack sensor (S) - Control module	10	uint16	A
461	AC inverter RMS current (S) - Power module 1	10	uint16	A
462	AC inverter RMS current (S) - Power module 2	10	uint16	A
463	AC inverter RMS current (S) - Power module 3	10	uint16	A
464	AC inverter RMS current (S) - Power module 4	10	uint16	A
465	AC inverter RMS current (S) - Power module 5	10	uint16	A
466	AC inverter RMS current (S) - Power module 6	10	uint16	A
467	AC inverter RMS current (S) - Power module 7	10	uint16	A
468	AC inverter RMS current (S) - Power module 8	10	uint16	A
501	AC mains RMS current (T) - Power module 1	10	uint16	A
502	AC mains RMS current (T) - Power module 2	10	uint16	A
503	AC mains RMS current (T) - Power module 3	10	uint16	A
504	AC mains RMS current (T) - Power module 4	10	uint16	A
505	AC mains RMS current (T) - Power module 5	10	uint16	A
506	AC mains RMS current (T) - Power module 6	10	uint16	A
507	AC mains RMS current (T) - Power module 7	10	uint16	A
508	AC mains RMS current (T) - Power module 8	10	uint16	A
515	AC backup mains RMS current (T) - Bypass module	10	uint16	A
516	AC mains RMS current (T) - Control module	10	uint16	A
541	AC output RMS current (T) - Power module 1	10	uint16	A
542	AC output RMS current (T) - Power module 2	10	uint16	A
543	AC output RMS current (T) - Power module 3	10	uint16	A
544	AC output RMS current (T) - Power module 4	10	uint16	A
545	AC output RMS current (T) - Power module 5	10	uint16	A
546	AC output RMS current (T) - Power module 6	10	uint16	A
547	AC output RMS current (T) - Power module 7	10	uint16	A
548	AC output RMS current (T) - Power module 8	10	uint16	A
556	AC output RMS current (T) - Control module	10	uint16	A
557	AC output RMS current - Rack sensor (T) - Control module	1	uint16	A
561	AC inverter RMS current (T) - Power module 1	10	uint16	A
562	AC inverter RMS current (T) - Power module 2	10	uint16	A
563	AC inverter RMS current (T) - Power module 3	10	uint16	A
564	AC inverter RMS current (T) - Power module 4	10	uint16	A
565	AC inverter RMS current (T) - Power module 5	10	uint16	A
566	AC inverter RMS current (T) - Power module 6	10	uint16	A
567	AC inverter RMS current (T) - Power module 7	10	uint16	A
568	AC inverter RMS current (T) - Power module 8	10	uint16	A
601	MPS VA Power (R) - Power module 1	100	int16	kVA

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
602	MPS VA Power (R) - Power module 2	100	int16	kVA
603	MPS VA Power (R) - Power module 3	100	int16	kVA
604	MPS VA Power (R) - Power module 4	100	int16	kVA
605	MPS VA Power (R) - Power module 5	100	int16	kVA
606	MPS VA Power (R) - Power module 6	100	int16	kVA
607	MPS VA Power (R) - Power module 7	100	int16	kVA
608	MPS VA Power (R) - Power module 8	100	int16	kVA
615	<i>BPS VA Power (R) - Bypass module</i>	100	int16	kVA
616	MPS VA Power (R) - Control module	100	int16	kVA
621	MPS W Power (R) - Power module 1	100	int16	kW
622	MPS W Power (R) - Power module 2	100	int16	kW
623	MPS W Power (R) - Power module 3	100	int16	kW
624	MPS W Power (R) - Power module 4	100	int16	kW
625	MPS W Power (R) - Power module 5	100	int16	kW
626	MPS W Power (R) - Power module 6	100	int16	kW
627	MPS W Power (R) - Power module 7	100	int16	kW
628	MPS W Power (R) - Power module 8	100	int16	kW
635	<i>BPS W Power (R) - Bypass module</i>	100	int16	kW
636	MPS W Power (R) - Control module	100	int16	kW
641	OUT VA Power (R) - Power module 1	100	int16	kVA
642	OUT VA Power (R) - Power module 2	100	int16	kVA
643	OUT VA Power (R) - Power module 3	100	int16	kVA
644	OUT VA Power (R) - Power module 4	100	int16	kVA
645	OUT VA Power (R) - Power module 5	100	int16	kVA
646	OUT VA Power (R) - Power module 6	100	int16	kVA
647	OUT VA Power (R) - Power module 7	100	int16	kVA
648	OUT VA Power (R) - Power module 8	100	int16	kVA
655	OUT VA Power (R) - <i>Bypass module</i>	100	int16	kVA
656	OUT VA Power (R) - Control module	100	int16	kVA
661	OUT W Power (R) - Power module 1	100	int16	kW
662	OUT W Power (R) - Power module 2	100	int16	kW
663	OUT W Power (R) - Power module 3	100	int16	kW
664	OUT W Power (R) - Power module 4	100	int16	kW
665	OUT W Power (R) - Power module 5	100	int16	kW
666	OUT W Power (R) - Power module 6	100	int16	kW
667	OUT W Power (R) - Power module 7	100	int16	kW
668	OUT W Power (R) - Power module 8	100	int16	kW
675	OUT W Power (R) - <i>Bypass module</i>	100	int16	kW
676	OUT W Power (R) - Control module	100	int16	kW
701	MPS VA Power (S) - Power module 1	100	int16	kVA
702	MPS VA Power (S) - Power module 2	100	int16	kVA
703	MPS VA Power (S) - Power module 3	100	int16	kVA
704	MPS VA Power (S) - Power module 4	100	int16	kVA
705	MPS VA Power (S) - Power module 5	100	int16	kVA
706	MPS VA Power (S) - Power module 6	100	int16	kVA
707	MPS VA Power (S) - Power module 7	100	int16	kVA
708	MPS VA Power (S) - Power module 8	100	int16	kVA
715	<i>BPS VA Power (S) - Bypass module</i>	100	int16	kVA

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
716	BPS VA Power (S) - Control module	100	int16	kVA
721	MPS W Power (S) - Power module 1	100	int16	kW
722	MPS W Power (S) - Power module 2	100	int16	kW
723	MPS W Power (S) - Power module 3	100	int16	kW
724	MPS W Power (S) - Power module 4	100	int16	kW
725	MPS W Power (S) - Power module 5	100	int16	kW
726	MPS W Power (S) - Power module 6	100	int16	kW
727	MPS W Power (S) - Power module 7	100	int16	kW
728	MPS W Power (S) - Power module 8	100	int16	kW
736	BPS W Power (S) - Control module	100	int16	kW
741	OUT VA Power (S) - Power module 1	100	int16	kVA
742	OUT VA Power (S) - Power module 2	100	int16	kVA
743	OUT VA Power (S) - Power module 3	100	int16	kVA
744	OUT VA Power (S) - Power module 4	100	int16	kVA
745	OUT VA Power (S) - Power module 5	100	int16	kVA
746	OUT VA Power (S) - Power module 6	100	int16	kVA
747	OUT VA Power (S) - Power module 7	100	int16	kVA
748	OUT VA Power (S) - Power module 8	100	int16	kVA
755	OUT VA Power (S) - Bypass module	100	int16	kVA
756	OUT VA Power (S) - Control module	100	int16	kVA
761	OUT W Power (S) - Power module 1	100	int16	kW
762	OUT W Power (S) - Power module 2	100	int16	kW
763	OUT W Power (S) - Power module 3	100	int16	kW
764	OUT W Power (S) - Power module 4	100	int16	kW
765	OUT W Power (S) - Power module 5	100	int16	kW
766	OUT W Power (S) - Power module 6	100	int16	kW
767	OUT W Power (S) - Power module 7	100	int16	kW
768	OUT W Power (S) - Power module 8	100	int16	kW
775	OUT W Power (S) - Bypass module	100	int16	kW
776	OUT W Power (S) - Control module	100	int16	kW
801	MPS VA Power (T) - Power module 1	100	int16	kVA
802	MPS VA Power (T) - Power module 2	100	int16	kVA
803	MPS VA Power (T) - Power module 3	100	int16	kVA
804	MPS VA Power (T) - Power module 4	100	int16	kVA
805	MPS VA Power (T) - Power module 5	100	int16	kVA
806	MPS VA Power (T) - Power module 6	100	int16	kVA
807	MPS VA Power (T) - Power module 7	100	int16	kVA
808	MPS VA Power (T) - Power module 8	100	int16	kVA
815	BPS VA Power (T) - Bypass module	100	int16	kVA
816	BPS VA Power (T) - Control module	100	int16	kVA
821	MPS W Power (T) - Power module 1	100	int16	kW
822	MPS W Power (T) - Power module 2	100	int16	kW
823	MPS W Power (T) - Power module 3	100	int16	kW
824	MPS W Power (T) - Power module 4	100	int16	kW
825	MPS W Power (T) - Power module 5	100	int16	kW
826	MPS W Power (T) - Power module 6	100	int16	kW
827	MPS W Power (T) - Power module 7	100	int16	kW
828	MPS W Power (T) - Power module 8	100	int16	kW

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
835	BPS W Power (T) - Bypass module	100	int16	kW
836	BPS W Power (T) - Control module	100	int16	kW
841	OUT VA Power (T) - Power module 1	100	int16	kVA
842	OUT VA Power (T) - Power module 2	100	int16	kVA
843	OUT VA Power (T) - Power module 3	100	int16	kVA
844	OUT VA Power (T) - Power module 4	100	int16	kVA
845	OUT VA Power (T) - Power module 5	100	int16	kVA
846	OUT VA Power (T) - Power module 6	100	int16	kVA
847	OUT VA Power (T) - Power module 7	100	int16	kVA
848	OUT VA Power (T) - Power module 8	100	int16	kVA
855	OUT VA Power (T) - Bypass module	100	int16	kVA
856	OUT VA Power (T) - Control module	100	int16	kVA
861	OUT W Power (T) - Power module 1	100	int16	kW
862	OUT W Power (T) - Power module 2	100	int16	kW
863	OUT W Power (T) - Power module 3	100	int16	kW
864	OUT W Power (T) - Power module 4	100	int16	kW
865	OUT W Power (T) - Power module 5	100	int16	kW
866	OUT W Power (T) - Power module 6	100	int16	kW
867	OUT W Power (T) - Power module 7	100	int16	kW
868	OUT W Power (T) - Power module 8	100	int16	kW
875	OUT W Power (T) - Bypass module	100	int16	kW
876	OUT W Power (T) - Control module	100	int16	kW
901	Average positive DC bus voltage - Power module 1	10	int16	V
902	Average positive DC bus voltage - Power module 2	10	int16	V
903	Average positive DC bus voltage - Power module 3	10	int16	V
904	Average positive DC bus voltage - Power module 4	10	int16	V
905	Average positive DC bus voltage - Power module 5	10	int16	V
906	Average positive DC bus voltage - Power module 6	10	int16	V
907	Average positive DC bus voltage - Power module 7	10	int16	V
908	Average positive DC bus voltage - Power module 8	10	int16	V
921	Average negative DC bus voltage - Power module 1	10	int16	V
922	Average negative DC bus voltage - Power module 2	10	int16	V
923	Average negative DC bus voltage - Power module 3	10	int16	V
924	Average negative DC bus voltage - Power module 4	10	int16	V
925	Average negative DC bus voltage - Power module 5	10	int16	V
926	Average negative DC bus voltage - Power module 6	10	int16	V
927	Average negative DC bus voltage - Power module 7	10	int16	V
928	Average negative DC bus voltage - Power module 8	10	int16	V
941	Average positive DC bus voltage - Power module 1	10	int16	V
942	Average positive DC bus voltage - Power module 2	10	int16	V
943	Average positive DC bus voltage - Power module 3	10	int16	V
944	Average positive DC bus voltage - Power module 4	10	int16	V
945	Average positive DC bus voltage - Power module 5	10	int16	V
946	Average positive DC bus voltage - Power module 6	10	int16	V
947	Average positive DC bus voltage - Power module 7	10	int16	V
948	Average positive DC bus voltage - Power module 8	10	int16	V
971	Average negative DC bus voltage - Power module 1	10	int16	V
972	Average negative DC bus voltage - Power module 2	10	int16	V

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
973	Average negative DC bus voltage - Power module 3	10	int16	V
974	Average negative DC bus voltage - Power module 4	10	int16	V
975	Average negative DC bus voltage - Power module 5	10	int16	V
976	Average negative DC bus voltage - Power module 6	10	int16	V
977	Average negative DC bus voltage - Power module 7	10	int16	V
978	Average negative DC bus voltage - Power module 8	10	int16	V
991	Average positive DC bus voltage - Power module 1	10	int16	V
992	Average positive DC bus voltage - Power module 2	10	int16	V
993	Average positive DC bus voltage - Power module 3	10	int16	V
994	Average positive DC bus voltage - Power module 4	10	int16	V
995	Average positive DC bus voltage - Power module 5	10	int16	V
996	Average positive DC bus voltage - Power module 6	10	int16	V
997	Average positive DC bus voltage - Power module 7	10	int16	V
998	Average positive DC bus voltage - Power module 8	10	int16	V
1011	Average negative DC bus voltage - Power module 1	10	int16	V
1012	Average negative DC bus voltage - Power module 2	10	int16	V
1013	Average negative DC bus voltage - Power module 3	10	int16	V
1014	Average negative DC bus voltage - Power module 4	10	int16	V
1015	Average negative DC bus voltage - Power module 5	10	int16	V
1016	Average negative DC bus voltage - Power module 6	10	int16	V
1017	Average negative DC bus voltage - Power module 7	10	int16	V
1018	Average negative DC bus voltage - Power module 8	10	int16	V
1031	Average positive DC battery voltage - Power module 1	10	int16	V
1032	Average positive DC battery voltage - Power module 2	10	int16	V
1033	Average positive DC battery voltage - Power module 3	10	int16	V
1034	Average positive DC battery voltage - Power module 4	10	int16	V
1035	Average positive DC battery voltage - Power module 5	10	int16	V
1036	Average positive DC battery voltage - Power module 6	10	int16	V
1037	Average positive DC battery voltage - Power module 7	10	int16	V
1038	Average positive DC battery voltage - Power module 8	10	int16	V
1039	Average positive DC battery voltage - Power module 9	10	int16	V
1051	Average negative DC battery voltage - Power module 1	10	int16	V
1052	Average negative DC battery voltage - Power module 2	10	int16	V
1053	Average negative DC battery voltage - Power module 3	10	int16	V
1054	Average negative DC battery voltage - Power module 4	10	int16	V
1055	Average negative DC battery voltage - Power module 5	10	int16	V
1056	Average negative DC battery voltage - Power module 6	10	int16	V
1057	Average negative DC battery voltage - Power module 7	10	int16	V
1058	Average negative DC battery voltage - Power module 8	10	int16	V
1066	Average negative DC battery voltage - Control module	10	int16	V
1101	Average positive DC battery current - Power module 1	10	int16	A
1102	Average positive DC battery current - Power module 2	10	int16	A
1103	Average positive DC battery current - Power module 3	10	int16	A
1104	Average positive DC battery current - Power module 4	10	int16	A
1105	Average positive DC battery current - Power module 5	10	int16	A
1106	Average positive DC battery current - Power module 6	10	int16	A
1107	Average positive DC battery current - Power module 7	10	int16	A
1108	Average positive DC battery current - Power module 8	10	int16	A

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
1116	Average positive DC battery current - Control module	10	int16	A
1121	Average negative DC battery current - Power module 1	10	int16	A
1122	Average negative DC battery current - Power module 2	10	int16	A
1123	Average negative DC battery current - Power module 3	10	int16	A
1124	Average negative DC battery current - Power module 4	10	int16	A
1125	Average negative DC battery current - Power module 5	10	int16	A
1126	Average negative DC battery current - Power module 6	10	int16	A
1127	Average negative DC battery current - Power module 7	10	int16	A
1128	Average negative DC battery current - Power module 8	10	int16	A
1136	Average negative DC battery current - Control module	10	int16	A
1201	Average positive DC battery current - Power module 1 - B1	10	int16	A
1202	Average positive DC battery current - Power module 2 - B1	10	int16	A
1203	Average positive DC battery current - Power module 3 - B1	10	int16	A
1204	Average positive DC battery current - Power module 4 - B1	10	int16	A
1205	Average positive DC battery current - Power module 5 - B1	10	int16	A
1206	Average positive DC battery current - Power module 6 - B1	10	int16	A
1207	Average positive DC battery current - Power module 7 - B1	10	int16	A
1208	Average positive DC battery current - Power module 8 - B1	10	int16	A
1221	Average positive DC battery current - Power module 1 - B2	10	int16	A
1222	Average positive DC battery current - Power module 2 - B2	10	int16	A
1223	Average positive DC battery current - Power module 3 - B2	10	int16	A
1224	Average positive DC battery current - Power module 4 - B2	10	int16	A
1225	Average positive DC battery current - Power module 5 - B2	10	int16	A
1226	Average positive DC battery current - Power module 6 - B2	10	int16	A
1227	Average positive DC battery current - Power module 7 - B2	10	int16	A
1228	Average positive DC battery current - Power module 8 - B2	10	int16	A
1241	Average negative DC battery current - Power module 1 - B1	10	int16	A
1242	Average negative DC battery current - Power module 2 - B1	10	int16	A
1243	Average negative DC battery current - Power module 3 - B1	10	int16	A
1244	Average negative DC battery current - Power module 4 - B1	10	int16	A
1245	Average negative DC battery current - Power module 5 - B1	10	int16	A
1246	Average negative DC battery current - Power module 6 - B1	10	int16	A
1247	Average negative DC battery current - Power module 7 - B1	10	int16	A
1248	Average negative DC battery current - Power module 8 - B1	10	int16	A
1261	Average negative DC battery current - Power module 1 - B2	10	int16	A
1262	Average negative DC battery current - Power module 2 - B2	10	int16	A
1263	Average negative DC battery current - Power module 3 - B2	10	int16	A
1264	Average negative DC battery current - Power module 4 - B2	10	int16	A
1265	Average negative DC battery current - Power module 5 - B2	10	int16	A
1266	Average negative DC battery current - Power module 6 - B2	10	int16	A
1267	Average negative DC battery current - Power module 7 - B2	10	int16	A
1268	Average negative DC battery current - Power module 8 - B2	10	int16	A
1801	Rectifier temperature - Power module 1	10	int16	°C
1802	Rectifier temperature - Power module 2	10	int16	°C
1803	Rectifier temperature - Power module 3	10	int16	°C
1804	Rectifier temperature - Power module 4	10	int16	°C
1805	Rectifier temperature - Power module 5	10	int16	°C
1806	Rectifier temperature - Power module 6	10	int16	°C

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
1807	Rectifier temperature - Power module 7	10	int16	°C
1808	Rectifier temperature - Power module 8	10	int16	°C
1821	Rectifier phase-R arm temperature - Power module 1	10	int16	°C
1822	Rectifier phase-R arm temperature - Power module 2	10	int16	°C
1823	Rectifier phase-R arm temperature - Power module 3	10	int16	°C
1824	Rectifier phase-R arm temperature - Power module 4	10	int16	°C
1825	Rectifier phase-R arm temperature - Power module 5	10	int16	°C
1826	Rectifier phase-R arm temperature - Power module 6	10	int16	°C
1827	Rectifier phase-R arm temperature - Power module 7	10	int16	°C
1828	Rectifier phase-R arm temperature - Power module 8	10	int16	°C
1841	Rectifier phase-S arm temperature - Power module 1	10	int16	°C
1842	Rectifier phase-S arm temperature - Power module 2	10	int16	°C
1843	Rectifier phase-S arm temperature - Power module 3	10	int16	°C
1844	Rectifier phase-S arm temperature - Power module 4	10	int16	°C
1845	Rectifier phase-S arm temperature - Power module 5	10	int16	°C
1846	Rectifier phase-S arm temperature - Power module 6	10	int16	°C
1847	Rectifier phase-S arm temperature - Power module 7	10	int16	°C
1848	Rectifier phase-S arm temperature - Power module 8	10	int16	°C
1861	Rectifier phase-T arm temperature - Power module 1	10	int16	°C
1862	Rectifier phase-T arm temperature - Power module 2	10	int16	°C
1863	Rectifier phase-T arm temperature - Power module 3	10	int16	°C
1864	Rectifier phase-T arm temperature - Power module 4	10	int16	°C
1865	Rectifier phase-T arm temperature - Power module 5	10	int16	°C
1866	Rectifier phase-T arm temperature - Power module 6	10	int16	°C
1867	Rectifier phase-T arm temperature - Power module 7	10	int16	°C
1868	Rectifier phase-T arm temperature - Power module 8	10	int16	°C
1881	Rectifier ambient temperature - Power module 1	10	int16	°C
1882	Rectifier ambient temperature - Power module 2	10	int16	°C
1883	Rectifier ambient temperature - Power module 3	10	int16	°C
1884	Rectifier ambient temperature - Power module 4	10	int16	°C
1885	Rectifier ambient temperature - Power module 5	10	int16	°C
1886	Rectifier ambient temperature - Power module 6	10	int16	°C
1887	Rectifier ambient temperature - Power module 7	10	int16	°C
1888	Rectifier ambient temperature - Power module 8	10	int16	°C
1901	Inverter temperature - Power module 1	10	int16	°C
1902	Inverter temperature - Power module 2	10	int16	°C
1903	Inverter temperature - Power module 3	10	int16	°C
1904	Inverter temperature - Power module 4	10	int16	°C
1905	Inverter temperature - Power module 5	10	int16	°C
1906	Inverter temperature - Power module 6	10	int16	°C
1907	Inverter temperature - Power module 7	10	int16	°C
1908	Inverter temperature - Power module 8	10	int16	°C
1921	Inverter phase-R arm temperature - Power module 1	10	int16	°C
1922	Inverter phase-R arm temperature - Power module 2	10	int16	°C
1923	Inverter phase-R arm temperature - Power module 3	10	int16	°C
1924	Inverter phase-R arm temperature - Power module 4	10	int16	°C
1925	Inverter phase-R arm temperature - Power module 5	10	int16	°C
1926	Inverter phase-R arm temperature - Power module 6	10	int16	°C

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
1927	Inverter phase-R arm temperature - Power module 7	10	int16	°C
1928	Inverter phase-R arm temperature - Power module 8	10	int16	°C
1941	Inverter phase-S arm temperature - Power module 1	10	int16	°C
1942	Inverter phase-S arm temperature - Power module 2	10	int16	°C
1943	Inverter phase-S arm temperature - Power module 3	10	int16	°C
1944	Inverter phase-S arm temperature - Power module 4	10	int16	°C
1945	Inverter phase-S arm temperature - Power module 5	10	int16	°C
1946	Inverter phase-S arm temperature - Power module 6	10	int16	°C
1947	Inverter phase-S arm temperature - Power module 7	10	int16	°C
1948	Inverter phase-S arm temperature - Power module 8	10	int16	°C
1961	Inverter phase-T arm temperature - Power module 1	10	int16	°C
1962	Inverter phase-T arm temperature - Power module 2	10	int16	°C
1963	Inverter phase-T arm temperature - Power module 3	10	int16	°C
1964	Inverter phase-T arm temperature - Power module 4	10	int16	°C
1965	Inverter phase-T arm temperature - Power module 5	10	int16	°C
1966	Inverter phase-T arm temperature - Power module 6	10	int16	°C
1967	Inverter phase-T arm temperature - Power module 7	10	int16	°C
1968	Inverter phase-T arm temperature - Power module 8	10	int16	°C
1981	Inverter ambient temperature - Power module 1	10	int16	°C
1982	Inverter ambient temperature - Power module 2	10	int16	°C
1983	Inverter ambient temperature - Power module 3	10	int16	°C
1984	Inverter ambient temperature - Power module 4	10	int16	°C
1985	Inverter ambient temperature - Power module 5	10	int16	°C
1986	Inverter ambient temperature - Power module 6	10	int16	°C
1987	Inverter ambient temperature - Power module 7	10	int16	°C
1988	Inverter ambient temperature - Power module 8	10	int16	°C
2001	Temperature - <i>Bypass</i> module	10	int16	°C
2021	Phase-R thyristors heatsink temperature - <i>Bypass</i> module	10	int16	°C
2041	Phase-S thyristors heatsink temperature - <i>Bypass</i> module	10	int16	°C
2061	Phase-T thyristors heatsink temperature - <i>Bypass</i> module	10	int16	°C
2081	Ambient temperature - <i>Bypass</i> module	10	int16	°C
2101	Positive battery DCDC charger temperature - Power module 1	10	int16	°C
2102	Positive battery DCDC charger temperature - Power module 2	10	int16	°C
2103	Positive battery DCDC charger temperature - Power module 3	10	int16	°C
2104	Positive battery DCDC charger temperature - Power module 4	10	int16	°C
2105	Positive battery DCDC charger temperature - Power module 5	10	int16	°C
2106	Positive battery DCDC charger temperature - Power module 6	10	int16	°C
2107	Positive battery DCDC charger temperature - Power module 7	10	int16	°C
2108	Positive battery DCDC charger temperature - Power module 8	10	int16	°C
2121	Negative battery DCDC charger temperature - Power module 1	10	int16	°C
2122	Negative battery DCDC charger temperature - Power module 2	10	int16	°C
2123	Negative battery DCDC charger temperature - Power module 3	10	int16	°C
2124	Negative battery DCDC charger temperature - Power module 4	10	int16	°C
2125	Negative battery DCDC charger temperature - Power module 5	10	int16	°C
2126	Negative battery DCDC charger temperature - Power module 6	10	int16	°C
2127	Negative battery DCDC charger temperature - Power module 7	10	int16	°C
2128	Negative battery DCDC charger temperature - Power module 8	10	int16	°C
2201	Battery temperature	10	int16	°C

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
2301	Mains frequency - Power module 1	10	uint16	Hz
2302	Mains frequency - Power module 2	10	uint16	Hz
2303	Mains frequency - Power module 3	10	uint16	Hz
2304	Mains frequency - Power module 4	10	uint16	Hz
2305	Mains frequency - Power module 5	10	uint16	Hz
2306	Mains frequency - Power module 6	10	uint16	Hz
2307	Mains frequency - Power module 7	10	uint16	Hz
2308	Mains frequency - Power module 8	10	uint16	Hz
2315	Mains frequency - <i>Bypass</i> module	10	uint16	Hz
2316	Mains frequency - Control module	10	uint16	Hz
2321	Output frequency - Power module 1	10	uint16	Hz
2322	Output frequency - Power module 2	10	uint16	Hz
2323	Output frequency - Power module 3	10	uint16	Hz
2324	Output frequency - Power module 4	10	uint16	Hz
2325	Output frequency - Power module 6	10	uint16	Hz
2326	Output frequency - Power module 5	10	uint16	Hz
2327	Output frequency - Power module 7	10	uint16	Hz
2328	Output frequency - Power module 8	10	uint16	Hz
2335	Output frequency - <i>Bypass</i> module	10	uint16	Hz
2336	Output frequency - Control module	10	uint16	Hz
2401	AC backup mains RMS voltage (R) - <i>Bypass</i> module	10	uint16	V
2406	AC output RMS voltage (R) - <i>Bypass</i> module	10	uint16	V
2501	AC backup mains RMS voltage (S) - <i>Bypass</i> module	10	uint16	V
2506	AC output RMS voltage (S) - <i>Bypass</i> module	10	uint16	V
2601	AC backup mains RMS voltage (T) - <i>Bypass</i> module	10	uint16	V
2606	AC output RMS voltage (T) - <i>Bypass</i> module	10	uint16	V
2701	MPS three-phase VA power - <i>Bypass</i> module	100	int16	kVA
2702	MPS three-phase VA power - Control module	100	int16	kVA
2705	MPS three-phase W power - <i>Bypass</i> module	100	int16	kW
2706	MPS three-phase W power - Control module	100	int16	kW
2711	OUT three-phase VA power - <i>Bypass</i> module	100	int16	kVA
2712	OUT three-phase VA power - Control module	100	int16	kVA
2715	OUT three-phase W power - <i>Bypass</i> module	100	int16	kW
2716	OUT three-phase W power - Control module	100	int16	kW
2720	Three-phase rated VA power - Power module 1	100	int16	kVA
2721	Three-phase rated VA power - Power module 2	100	int16	kVA
2722	Three-phase rated VA power - Power module 3	100	int16	kVA
2723	Three-phase rated VA power - Power module 4	100	int16	kVA
2724	Three-phase rated VA power - Power module 5	100	int16	kVA
2725	Three-phase rated VA power - Power module 6	100	int16	kVA
2726	Three-phase rated VA power - Power module 7	100	int16	kVA
2727	Three-phase rated VA power - Power module 8	100	int16	kVA
2732	OUT three-phase VA power - Control module	100	int16	kVA
2740	Available three-phase VA power – Power module 1	100	int16	kVA
2741	Available three-phase VA power – Power module 2	100	int16	kVA
2742	Available three-phase VA power – Power module 3	100	int16	kVA
2743	Available three-phase VA power – Power module 4	100	int16	kVA
2744	Available three-phase VA power – Power module 5	100	int16	kVA

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
2745	Available three-phase VA power – Power module 6	100	int16	kVA
2746	Available three-phase VA power – Power module 7	100	int16	kVA
2747	Available three-phase VA power – Power module 8	100	int16	kVA
2751	Available three-phase VA power – <i>Bypass</i> module	100	int16	kVA
2752	Available three-phase VA power – Control module	100	int16	kVA
2801	Positive battery W power - Power module 1	100	int16	kW
2802	Positive battery W power - Power module 2	100	int16	kW
2803	Positive battery W power - Power module 3	100	int16	kW
2804	Positive battery W power - Power module 4	100	int16	kW
2805	Positive battery W power - Power module 5	100	int16	kW
2806	Positive battery W power - Power module 6	100	int16	kW
2807	Positive battery W power - Power module 7	100	int16	kW
2808	Positive battery W power - Power module 8	100	int16	kW
2816	Positive battery W power - Control module	100	int16	kW
2831	Negative battery W power - Power module 1	100	int16	kW
2832	Negative battery W power - Power module 2	100	int16	kW
2833	Negative battery W power - Power module 3	100	int16	kW
2834	Negative battery W power - Power module 4	100	int16	kW
2835	Negative battery W power - Power module 5	100	int16	kW
2836	Negative battery W power - Power module 6	100	int16	kW
2837	Negative battery W power - Power module 7	100	int16	kW
2838	Negative battery W power - Power module 8	100	int16	kW
2846	Negative battery W power - Control module	100	int16	kW
2850	Input rated power percentage - Control module	1	uint8	%
2851	Output rated power percentage - Control module	1	uint8	%
2852	Rated power percentage - <i>Bypass</i> module	1	int16	%
2901	Fan 1 rotational speed - Power module 1	1	uint16	RPM
2902	Fan 1 rotational speed - Power module 2	1	uint16	RPM
2903	Fan 1 rotational speed - Power module 3	1	uint16	RPM
2904	Fan 1 rotational speed - Power module 4	1	uint16	RPM
2905	Fan 1 rotational speed - Power module 5	1	uint16	RPM
2906	Fan 1 rotational speed - Power module 6	1	uint16	RPM
2907	Fan 1 rotational speed - Power module 7	1	uint16	RPM
2908	Fan 1 rotational speed - Power module 8	1	uint16	RPM
2915	Fan 1 rotational speed - <i>Bypass</i> module	1	uint16	RPM
2921	Fan 2 rotational speed - Power module 1	1	uint16	RPM
2922	Fan 2 rotational speed - Power module 2	1	uint16	RPM
2923	Fan 2 rotational speed - Power module 3	1	uint16	RPM
2924	Fan 2 rotational speed - Power module 4	1	uint16	RPM
2925	Fan 2 rotational speed - Power module 5	1	uint16	RPM
2926	Fan 2 rotational speed - Power module 6	1	uint16	RPM
2927	Fan 2 rotational speed - Power module 7	1	uint16	RPM
2928	Fan 2 rotational speed - Power module 8	1	uint16	RPM
2935	Fan 2 rotational speed - <i>Bypass</i> module	1	uint16	RPM
2941	Fan 3 rotational speed - Power module 1	1	uint16	RPM
2942	Fan 3 rotational speed - Power module 2	1	uint16	RPM
2943	Fan 3 rotational speed - Power module 3	1	uint16	RPM
2944	Fan 3 rotational speed - Power module 4	1	uint16	RPM

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
2945	Fan 3 rotational speed - Power module 5	1	uint16	RPM
2946	Fan 3 rotational speed - Power module 6	1	uint16	RPM
2947	Fan 3 rotational speed - Power module 7	1	uint16	RPM
2948	Fan 3 rotational speed - Power module 8	1	uint16	RPM
2955	Fan 3 rotational speed - <i>Bypass</i> module	1	uint16	RPM
2961	Fan 4 rotational speed - Power module 1	1	uint16	RPM
2962	Fan 4 rotational speed - Power module 2	1	uint16	RPM
2963	Fan 4 rotational speed - Power module 3	1	uint16	RPM
2964	Fan 4 rotational speed - Power module 4	1	uint16	RPM
2965	Fan 4 rotational speed - Power module 5	1	uint16	RPM
2966	Fan 4 rotational speed - Power module 6	1	uint16	RPM
2967	Fan 4 rotational speed - Power module 7	1	uint16	RPM
2968	Fan 4 rotational speed - Power module 8	1	uint16	RPM
3001	Positive battery charge percentage - Control module	1	uint16	%
3002	Negative battery charge percentage - Control module	1	uint16	%
3003	Time until positive battery discharge - Control module	1	uint16	min
3004	Time until negative battery discharge - Control module	1	uint16	min
4001	Date: Day of the week	1	uint16	-
4002	Time: Second	1	uint16	s
4003	Time: Minute	1	uint16	min
4004	Time: Hour	1	uint16	h
4005	Date: Day	1	uint16	-
4006	Date: Month	1	uint16	-
4007	Date: Year	1	uint16	-
4010	Power module 1 <i>firmware</i> version - X1	1	uint8	-
4012	Power module 1 <i>firmware</i> version - X2	1	uint8	-
4014	Power module 1 <i>firmware</i> version - X3	1	uint8	-
4016	Power module 1 <i>firmware</i> version - Y	1	uint8	-
4020	Power module 2 <i>firmware</i> version - X1	1	uint8	-
4022	Power module 2 <i>firmware</i> version - X2	1	uint8	-
4024	Power module 2 <i>firmware</i> version - X3	1	uint8	-
4026	Power module 2 <i>firmware</i> version - Y	1	uint8	-
4030	Power module 3 <i>firmware</i> version - X1	1	uint8	-
4032	Power module 3 <i>firmware</i> version - X2	1	uint8	-
4034	Power module 3 <i>firmware</i> version - X3	1	uint8	-
4036	Power module 3 <i>firmware</i> version - Y	1	uint8	-
4040	Power module 4 <i>firmware</i> version - X1	1	uint8	-
4042	Power module 4 <i>firmware</i> version - X2	1	uint8	-
4044	Power module 4 <i>firmware</i> version - X3	1	uint8	-
4046	Power module 4 <i>firmware</i> version - Y	1	uint8	-
4050	Power module 5 <i>firmware</i> version - X1	1	uint8	-
4052	Power module 5 <i>firmware</i> version - X2	1	uint8	-
4054	Power module 5 <i>firmware</i> version - X3	1	uint8	-
4056	Power module 5 <i>firmware</i> version - Y	1	uint8	-
4060	Power module 6 <i>firmware</i> version - X1	1	uint8	-
4062	Power module 6 <i>firmware</i> version - X2	1	uint8	-
4064	Power module 6 <i>firmware</i> version - X3	1	uint8	-
4066	Power module 6 <i>firmware</i> version - Y	1	uint8	-

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
4070	Power module 7 <i>firmware</i> version - X1	1	uint8	-
4072	Power module 7 <i>firmware</i> version - X2	1	uint8	-
4074	Power module 7 <i>firmware</i> version - X3	1	uint8	-
4076	Power module 7 <i>firmware</i> version - Y	1	uint8	-
4080	Power module 8 <i>firmware</i> version - X1	1	uint8	-
4082	Power module 8 <i>firmware</i> version - X2	1	uint8	-
4084	Power module 8 <i>firmware</i> version - X3	1	uint8	-
4086	Power module 8 <i>firmware</i> version - Y	1	uint8	-
4128	Bypass module <i>firmware</i> version X1	1	uint8	-
4130	Bypass module <i>firmware</i> version X2	1	uint8	-
4132	Bypass module <i>firmware</i> version X3	1	uint8	-
4134	Bypass module <i>firmware</i> version Y	1	uint8	-
4136	Management module <i>firmware</i> version X1	1	uint8	-
4138	Management module <i>firmware</i> version X2	1	uint8	-
4140	Management module <i>firmware</i> version X3	1	uint8	-
4142	Management module <i>firmware</i> version Y	1	uint8	-
4144	HMI <i>firmware</i> version X1	1	uint8	-
4146	HMI <i>firmware</i> version X2	1	uint8	-
4148	HMI <i>firmware</i> version X3	1	uint8	-
4149	HMI <i>firmware</i> version Y	1	uint8	-
22001	Average AC mains voltage (R) - Power module 1	10	int16	V
22002	Average AC mains voltage (R) - Power module 2	10	int16	V
22003	Average AC mains voltage (R) - Power module 3	10	int16	V
22004	Average AC mains voltage (R) - Power module 4	10	int16	V
22005	Average AC mains voltage (R) - Power module 5	10	int16	V
22006	Average AC mains voltage (R) - Power module 6	10	int16	V
22007	Average AC mains voltage (R) - Power module 7	10	int16	V
22008	Average AC mains voltage (R) - Power module 8	10	int16	V
22021	Average AC backup mains voltage (R) - Control module	10	int16	V
22022	Average AC mains voltage (R) - Control module	10	int16	V
22031	Average AC backup mains voltage (R) - Bypass module	10	int16	V
22051	Average AC output voltage (R) - Power module 1	10	int16	V
22052	Average AC output voltage (R) - Power module 2	10	int16	V
22053	Average AC output voltage (R) - Power module 3	10	int16	V
22054	Average AC output voltage (R) - Power module 4	10	int16	V
22055	Average AC output voltage (R) - Power module 5	10	int16	V
22056	Average AC output voltage (R) - Power module 6	10	int16	V
22057	Average AC output voltage (R) - Power module 7	10	int16	V
22058	Average AC output voltage (R) - Power module 8	10	int16	V
22071	Average AC output voltage (R) - Control module	10	int16	V
22081	Average AC output voltage (R) - Bypass module	10	int16	V
22091	Average AC inverter voltage (R) - Power module 1	10	int16	V
22092	Average AC inverter voltage (R) - Power module 2	10	int16	V
22093	Average AC inverter voltage (R) - Power module 3	10	int16	V
22094	Average AC inverter voltage (R) - Power module 4	10	int16	V
22095	Average AC inverter voltage (R) - Power module 5	10	int16	V
22096	Average AC inverter voltage (R) - Power module 6	10	int16	V
22097	Average AC inverter voltage (R) - Power module 7	10	int16	V

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
22098	Average AC inverter voltage (R) - Power module 8	10	int16	V
22201	Average AC mains voltage (S) - Power module 1	10	int16	V
22202	Average AC mains voltage (S) - Power module 2	10	int16	V
22203	Average AC mains voltage (S) - Power module 3	10	int16	V
22204	Average AC mains voltage (S) - Power module 4	10	int16	V
22205	Average AC mains voltage (S) - Power module 5	10	int16	V
22206	Average AC mains voltage (S) - Power module 6	10	int16	V
22207	Average AC mains voltage (S) - Power module 7	10	int16	V
22208	Average AC mains voltage (S) - Power module 8	10	int16	V
22221	DC <i>backup</i> mains RMS voltage (S) - Control module	10	int16	V
22222	Average AC mains voltage (S) - Control module	10	int16	V
22231	Average AC <i>backup</i> mains voltage (S) - <i>Backup</i> module	10	int16	V
22251	Average AC output voltage (S) - Power module 1	10	int16	V
22252	Average AC output voltage (S) - Power module 2	10	int16	V
22253	Average AC output voltage (S) - Power module 3	10	int16	V
22254	Average AC output voltage (S) - Power module 4	10	int16	V
22255	Average AC output voltage (S) - Power module 5	10	int16	V
22256	Average AC output voltage (S) - Power module 6	10	int16	V
22257	Average AC output voltage (S) - Power module 7	10	int16	V
22258	Average AC output voltage (S) - Power module 8	10	int16	V
22271	Average AC output voltage (S) - Control module	10	int16	V
22281	Average AC output voltage (S) - <i>Backup</i> module	10	int16	V
22291	Average AC inverter voltage (S) - Power module 1	10	int16	V
22292	Average AC inverter voltage (S) - Power module 2	10	int16	V
22293	Average AC inverter voltage (S) - Power module 3	10	int16	V
22294	Average AC inverter voltage (S) - Power module 4	10	int16	V
22295	Average AC inverter voltage (S) - Power module 5	10	int16	V
22296	Average AC inverter voltage (S) - Power module 6	10	int16	V
22297	Average AC inverter voltage (S) - Power module 7	10	int16	V
22298	Average AC inverter voltage (S) - Power module 8	10	int16	V
22401	Average AC mains voltage (T) - Power module 1	10	int16	V
22402	Average AC mains voltage (T) - Power module 2	10	int16	V
22403	Average AC mains voltage (T) - Power module 3	10	int16	V
22404	Average AC mains voltage (T) - Power module 4	10	int16	V
22405	Average AC mains voltage (T) - Power module 5	10	int16	V
22406	Average AC mains voltage (T) - Power module 6	10	int16	V
22407	Average AC mains voltage (T) - Power module 7	10	int16	V
22408	Average AC mains voltage (T) - Power module 8	10	int16	V
22421	Average AC <i>backup</i> mains voltage (T) - Control module	10	int16	V
22422	Average AC mains voltage (T) - Control module	10	int16	V
22431	Average AC <i>backup</i> mains voltage (T) - <i>Backup</i> module	10	int16	V
22451	Average AC output voltage (T) - Power module 1	10	int16	V
22452	Average AC output voltage (T) - Power module 2	10	int16	V
22453	Average AC output voltage (T) - Power module 3	10	int16	V
22454	Average AC output voltage (T) - Power module 4	10	int16	V
22455	Average AC output voltage (T) - Power module 5	10	int16	V
22456	Average AC output voltage (T) - Power module 6	10	int16	V
22457	Average AC output voltage (T) - Power module 7	10	int16	V

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
22458	Average AC output voltage (T) - Power module 8	10	int16	V
22471	Average AC output voltage (T) - Control module	10	int16	V
22481	Average AC output voltage (T) - <i>Backup</i> module	10	int16	V
22491	Average AC inverter voltage (T) - Power module 1	10	int16	V
22492	Average AC inverter voltage (T) - Power module 2	10	int16	V
22493	Average AC inverter voltage (T) - Power module 3	10	int16	V
22494	Average AC inverter voltage (T) - Power module 4	10	int16	V
22495	Average AC inverter voltage (T) - Power module 5	10	int16	V
22496	Average AC inverter voltage (T) - Power module 6	10	int16	V
22497	Average AC inverter voltage (T) - Power module 7	10	int16	V
22498	Average AC inverter voltage (T) - Power module 8	10	int16	V
23001	Average AC output current (R) - Power module 1	10	int16	A
23002	Average AC output current (R) - Power module 2	10	int16	A
23003	Average AC output current (R) - Power module 3	10	int16	A
23004	Average AC output current (R) - Power module 4	10	int16	A
23005	Average AC output current (R) - Power module 5	10	int16	A
23006	Average AC output current (R) - Power module 6	10	int16	A
23007	Average AC output current (R) - Power module 7	10	int16	A
23008	Average AC output current (R) - Power module 8	10	int16	A
23021	Average AC output current (R) - Management module	10	int16	A
23031	Average AC backup mains current (R) - <i>Bypass</i> module	10	int16	A
23101	Average AC output current (S) - Power module 1	10	int16	A
23102	Average AC output current (S) - Power module 2	10	int16	A
23103	Average AC output current (S) - Power module 3	10	int16	A
23104	Average AC output current (S) - Power module 4	10	int16	A
23105	Average AC output current (S) - Power module 5	10	int16	A
23106	Average AC output current (S) - Power module 6	10	int16	A
23107	Average AC output current (S) - Power module 7	10	int16	A
23108	Average AC output current (S) - Power module 8	10	int16	A
23121	Average AC output current (S) - Management module	10	int16	A
23131	Average AC <i>backup</i> mains current (S) - <i>Backup</i> module	10	int16	A
23201	Average AC output current (T) - Power module 1	10	int16	A
23202	Average AC output current (T) - Power module 2	10	int16	A
23203	Average AC output current (T) - Power module 3	10	int16	A
23204	Average AC output current (T) - Power module 4	10	int16	A
23205	Average AC output current (T) - Power module 5	10	int16	A
23206	Average AC output current (T) - Power module 6	10	int16	A
23207	Average AC output current (T) - Power module 7	10	int16	A
23208	Average AC output current (T) - Power module 8	10	int16	A
23221	Average AC output current (T) - Management module	10	int16	A
23231	Average AC <i>backup</i> mains current (T) - <i>Backup</i> module	10	int16	A
40001	Rated output frequency	1	uint16	Hz
40002	Rated output voltage	1	uint16	V
40003	Rated output voltage	10	uint16	
40004	Enable automatic output reconnection	1	uint16	-
40005	Rated output voltage	1	uint8	-
40006	Rated output voltage	1	uint8	-
40007	Module enable bit	1	uint16	-

APPENDIX A - MODBUS ADDRESS TABLES

ID	Variable Description	Multiplier	Type	Unit
40008	Module disable bit	1	uint16	-
40009	Module operating mode	1	uint16	-
40010	Rack operating in parallel	1	uint8	-
40011	Rack operation as master	1	uint8	-
40012	<i>Rack ID</i>	1	uint8	-
40013	<i>Rack with shared battery</i>	1	uint8	-
40021	Upper tolerance of the output voltage	1	uint16	%
40022	Lower tolerance of the output voltage	1	uint16	%
40023	Upper tolerance of the ECO <i>bypass</i> output voltage	1	uint16	%
40024	Lower tolerance of the ECO <i>bypass</i> output voltage	1	uint16	%
40025	Frequency tolerance of the <i>bypass</i> output	1	uint16	Hz
40030	<i>bypass</i> frame	1	uint16	-
40040	Buzzer operating status	1	uint8	-
44050	Battery type	1	uint8	-
44051	Battery rated voltage	1	uint16	V
44052	Battery float voltage	1	uint16	V
44053	Battery equalization voltage	1	uint16	V
44054	Maximum battery charging current	10	uint16	A
44055	Battery undervoltage	1	uint16	V
44056	Battery overvoltage	1	uint16	V
44057	Maximum battery temperature	1	uint16	°C
44058	Battery float current (Ifloat)	10	uint16	A
44059	Initial battery charging current (Icharge)	10	uint16	A
44060	Maximum battery charging time	1	uint16	min
44061	Maximum time in battery equalization procedure	1	uint16	min
44062	Time above Icharge to start charging	1	uint16	min
44063	Time below Ifloat to complete recharging	1	uint16	min
44064	Time below Ifloat to complete forced equalization	1	uint16	min
44065	Battery temperature sensor setting	1	uint8	-
44066	Temperature reference for battery thermal compensation	1	uint16	°C
44067	Battery thermal compensation setting	1	uint8	-
44068	Battery thermal compensation coefficient	10	uint16	mV/°C
44069	Minimum temperature for battery thermal compensation	1	uint16	°C
44070	Maximum temperature for battery thermal compensation	1	uint16	°C
44071	Minimum voltage for battery thermal compensation	1	uint16	V
44072	Maximum voltage for battery thermal compensation	1	uint16	V
44073	Battery LVD setting	1	uint8	-
44074	<i>LVD</i> disconnection voltage	1	uint16	V
44075	Battery disconnection time in <i>LVD</i>	1	uint16	min
44076	Battery pre-charge setting	1	uint8	-
44077	Battery pre-charge threshold voltage	1	uint16	Ah
44078	Battery pre-charge current limit	10	uint16	Ah
44079	Battery SOC capacity	1	uint16	Ah
44100	Battery disconnection setting	1	uint8	-
47001	X RMS velocity mm/s	100	int16	mm/s
47002	Y RMS velocity mm/s	100	int16	mm/s
47003	Z RMS velocity mm/s	100	int16	mm/s
47004	X RMS acceleration m/s ²	100	int16	m/s ²

ID	Variable Description	Multiplier	Type	Unit
47005	Y RMS acceleration m/s ²	100	int16	m/s ²
47006	Z RMS acceleration m/s ²	100	int16	m/s ²
47007	X peak-to-peak acceleration m/s ²	100	int16	m/s ²
47008	Y peak-to-peak acceleration m/s ²	100	int16	m/s ²
47009	Z peak-to-peak acceleration m/s ²	100	int16	m/s ²
47010	X acceleration crest factor (dimensionless)	100	int16	m/s ²
47011	Y acceleration crest factor (dimensionless)	100	int16	m/s ²
47012	Z acceleration crest factor (dimensionless)	100	int16	m/s ²
47013	Surface temperature	100	int16	°C
47014	Ambient temperature	100	int16	°C
47015	Humidity	100	uint16	%
47016	Atmospheric pressure	100	uint16	-
47100	Open-door sensor status	1	bool	-
47014	Ambient temperature	100	int16	°C
47015	Humidity	100	uint16	%
47016	Atmospheric pressure	100	uint16	-
47100	Open-door sensor status	1	bool	-

APPENDIX B - EVENT TABLES

Table B.1: Description of product events

ID	Descripción del Evento	Tipo
80	Overvoltage - Main Input	Fault
81	Overvoltage - <i>Bypass</i> Input	Fault
82	Overvoltage - Output	Fault
83	Overvoltage - Battery Bank	Fault
480	Undervoltage - Main Input	Fault
481	Undervoltage - <i>Bypass</i> Input	Fault
482	Undervoltage - Output	Fault
483	Undervoltage - Battery Bank	Fault
861	Hardware Overcurrent - Rectifier Input	Fault
862	Hardware Overcurrent - Inverter Output	Fault
867	Hardware Overcurrent - Battery Charger 1	Fault
868	Hardware Overcurrent - Battery Charger 2	Fault
872	Overcurrent - <i>Bypass</i> Input (R)	Fault
873	Overcurrent - Rectifier Input (R)	Fault
874	Overcurrent - Inverter Output (R)	Fault
876	Battery Charger Overcurrent - Bank 1	Fault
877	Battery Charger Overcurrent - Bank 2	Fault
878	Overcurrent - UPS Output	Fault
880	Current Sensor Abnormal Operation - Output (R)	Fault
881	Current Sensor Abnormal Operation - Output (S)	Fault
882	Current Sensor Abnormal Operation - Output (T)	Fault
962	Overcurrent - <i>Bypass</i> Input (S)	Fault
973	Overcurrent - Rectifier Input (S)	Fault
974	Overcurrent - Inverter Output (S)	Fault
1073	Overcurrent - Rectifier Input (T)	Fault
1074	Overcurrent - Inverter Output (T)	Fault
1211	Overfrequency - Main Input	Fault
1212	Overfrequency - <i>Bypass</i> Input	Fault
1213	Overfrequency - Output	Fault
1215	Underfrequency - Main Input	Fault
1216	Underfrequency - <i>Bypass</i> Input	Fault
1217	Underfrequency - Output	Fault
1231	Reverse Phase Sequence - Main Input	Alert
1232	Reverse Phase Sequence - <i>Bypass</i> Input	Fault
1241	Ground Potential Fluctuation	Fault
1251	AC Pre-charge Fault	Fault
1252	DC Pre-charge Fault	Fault
1261	Fuse Open - Input (R)	Fault
1262	Fuse Open - Input (S)	Fault
1263	Fuse Open - Input (T)	Fault
1265	Fuse Open - Output (R)	Fault
1266	Fuse Open - Output (S)	Fault
1267	Fuse Open - Output (T)	Fault
1301	Driver circuit failure - Rectifier (R)	Fault
1302	Driver circuit failure - Rectifier (S)	Fault
1303	Driver circuit failure - Rectifier (T)	Fault

APPENDIX B - EVENT TABLES

ID	Descripción del Evento	Tipo
1304	Driver circuit supply failure - Rectifier	Fault
1311	Driver circuit failure - Inverter (R)	Fault
1312	Driver circuit failure - Inverter (S)	Fault
1313	Driver circuit failure - Inverter (T)	Fault
1314	Driver circuit supply failure - Inverter	Fault
1321	Driver circuit failure - Battery Charger 1	Fault
1323	Driver circuit failure - Battery Charger 2	Fault
1324	Driver circuit supply failure - Battery Charger	Fault
1341	Redundant protection module fault signal	Alert
1351	Protection module fault signal	Alert
1360	Backfeed alarm	Notification
1361	Backfeed Protection Activated	Alert
1362	Backfeed fault	Fault
1370	<i>Bypass</i> Closure Failure	Fault
1391	Electronics power supply fault	Alert
1629	Overload - Output	Alert
1679	Overload - Output (R)	Fault
2005	High Temperature - Rectifier	Alert
2015	Overtemperature - Rectifier	Fault
2025	High Temperature - Inverter	Alert
2035	Overheating - Inverter	Fault
2041	High Temperature - Battery Charger 1 (Heatsink)	Alert
2042	High Temperature - Battery Charger 2 (Heatsink)	Alert
2043	Overtemperature - Battery Charger 1 (Heatsink)	Fault
2044	Overtemperature - Battery Charger 2 (Heatsink)	Fault
2055	High Temperature - <i>Bypass</i>	Alert
2065	Overtemperature - <i>Bypass</i>	Fault
2071	High Temperature - Battery	Alert
2072	Overtemperature - Battery	Fault
2100	Abnormal Temperature Sensor - Rectifier (R)	Alert
2101	Abnormal Temperature Sensor - Rectifier (S)	Alert
2102	Abnormal Temperature Sensor - Rectifier (T)	Alert
2104	Abnormal Temperature Sensor - Inverter (R)	Alert
2105	Abnormal Temperature Sensor - Inverter (S)	Alert
2106	Abnormal Temperature Sensor - Inverter (T)	Alert
2108	Abnormal Temperature Sensor - DCDC (Positive)	Alert
2109	Abnormal Temperature Sensor - DCDC (Negative)	Alert
2110	Abnormal Temperature Sensor (R)	Alert
2111	Abnormal Temperature Sensor (S)	Alert
2112	Abnormal Temperature Sensor (T)	Alert
2113	Abnormal Temperature Sensor - Battery	Alert
2201	Malfunction - Fan 1	Alert
2202	Malfunction - Fan 2	Alert
2203	Malfunction - Fan 3	Alert
2204	Malfunction - Fan 4	Alert
2210	Panel door open	Alert
2211	X-Axis Motion - Accessory Sensor	Alert
2212	Y-Axis Motion - Accessory Sensor	Alert

ID	Descripción del Evento	Tipo
2213	Z-Axis Motion - Accessory Sensor	Alert
2214	Temperature Limit Exceeded - Ambient Sensor	Alert
2215	Humidity Limit Exceeded - Ambient Sensor	Alert
2216	Pressure Limit Exceeded - Ambient Sensor	Alert
2300	<i>Hotswap</i> Latch	Notification
2301	Emergency Pushbutton	Fault
2303	Maintenance Bypass Signal	Alert
2304	<i>Maintenance Bypass On in Emergency Mode</i>	Alert
3001	Online Mode	Notification
3003	Battery Mode	Notification
3005	Battery Charger Mode	Notification
3006	<i>Bypass On</i>	Notification
3007	<i>Automatic Bypass On</i>	Notification
3008	<i>Standby Bypass Mode</i>	Notification
3009	<i>Manual Bypass Mode</i>	Notification
3010	<i>Bypass Off</i>	Notification
3011	Eco Mode	Notification
3012	Emergency Mode	Notification
3013	Maintenance Mode	Notification
3014	<i>OFF</i> mode	Notification
4000	Loss of communication with the manager	Fault
4001	Loss of communication with the master rack	Fault
4010	Internal CAN Manager communication fault	Fault
4011	Internal CAN Manager communication fault	Alert
4012	Internal CAN Manager communication fault	Notification
4013	External CAN Manager communication fault	Fault
4014	External CAN Manager communication fault	Alert
4015	External CAN Manager communication fault	Notification
4020	Loss of Synchronism with the Main Utility	Notification
4021	Loss of Synchronism with the <i>Bypass</i> Input	Alert
4022	Loss of Synchronism with the Output Supply	Notification
4024	Loss of Rack Synchronism Reference	Alert
4030	CAN HMI communication fault	Fault
4031	CAN HMI communication fault	Alert
4032	CAN HMI communication fault	Notification
6101	System Initialization Error	Notification
6102	Unable to set output current value	Fault
6200	Incorrect password	Notification
6201	Alarm history deleted by user	Notification
6202	User reloaded module alarm history	Notification
6312	Bypass Module Fault	Fault
6313	Power Module Fault	Fault
6333	Power Module - Permanent Fault	Fault
6341	Power module 1 added	Notification
6342	Power module 2 added	Notification
6343	Power module 3 added	Notification
6344	Power module 4 added	Notification
6345	Power module 5 added	Notification

APPENDIX B - EVENT TABLES

ID	Descripción del Evento	Tipo
6346	Power module 6 added	Notification
6347	Power module 7 added	Notification
6348	Power module 8 added	Notification
6352	Bypass module added	Notification
6361	Power module 1 removed	Notification
6362	Power module 2 removed	Notification
6363	Power module 3 removed	Notification
6364	Power module 4 removed	Notification
6365	Power module 5 removed	Notification
6366	Power module 6 removed	Notification
6367	Power module 7 removed	Notification
6368	Power module 8 removed	Notification
6372	Bypass module removed	Notification
6380	Shutdown started due to low battery voltage	Fault
6381	Shutdown due to low battery voltage	Fault
6382	Battery Charged	Notification
6383	Battery at medium state of charge	Notification
6384	Low Battery	Alert
6385	Critical Low Battery	Fault
6386	Battery Test Failed	Notification
6390	Bypass Module Not Present	Alert
6400	Output Voltage Interrupted	Fault
6401	Load transfer	Notification
6410	Firmware update failure - Power Module 1	Fault
6411	Firmware update failure - Power Module 2	Fault
6412	Firmware update failure - Power Module 3	Fault
6413	Firmware update failure - Power Module 4	Fault
6414	Firmware update failure - Power Module 5	Fault
6415	Firmware update failure - Power Module 6	Fault
6416	Firmware update failure - Power Module 7	Fault
6417	Firmware update failure - Power Module 8	Fault
6421	Firmware update failure - Bypass Module	Fault
6422	Firmware update failure - Backup Manager Module	Fault
6423	Firmware update failure - Manager Module	Fault
6431	Firmware incompatible - Rack 1	Fault
6432	Firmware incompatible - Rack 2	Fault
6433	Firmware incompatible - Rack 3	Fault
6434	Firmware incompatible - Rack 4	Fault
6435	Firmware incompatible - Rack 5	Fault
6436	Firmware incompatible - Rack 6	Fault
6437	Firmware incompatible - Rack 7	Fault
6438	Firmware incompatible - Rack 8	Fault
6441	Incompatible frame - Rack 1	Fault
6442	Incompatible frame - Rack 2	Fault
6443	Incompatible frame - Rack 3	Fault
6444	Incompatible frame - Rack 4	Fault
6445	Incompatible frame - Rack 5	Fault
6446	Incompatible frame - Rack 6	Fault

ID	Descripción del Evento	Tipo
6447	Incompatible frame - <i>Rack 7</i>	Fault
6448	Incompatible frame - <i>Rack 8</i>	Fault
6451	<i>Rack 1</i> added	Notification
6452	<i>Rack 2</i> added	Notification
6453	<i>Rack 3</i> added	Notification
6454	<i>Rack 4</i> added	Notification
6455	<i>Rack 5</i> added	Notification
6456	<i>Rack 6</i> added	Notification
6457	<i>Rack 7</i> added	Notification
6458	<i>Rack 8</i> added	Notification
6461	<i>Rack 1</i> removed	Notification
6462	<i>Rack 2</i> removed	Notification
6463	<i>Rack 3</i> removed	Notification
6464	<i>Rack 4</i> removed	Notification
6465	<i>Rack 5</i> removed	Notification
6466	<i>Rack 6</i> removed	Notification
6467	<i>Rack 7</i> removed	Notification
6468	<i>Rack 8</i> removed	Notification

APPENDIX C - PRODUCT LABEL

The UMDW identification label is located on the inside of the product door and follows the model shown in Figure C.1 on page C-1.



Figure C.1: Product label



BRAZIL

WEG DRIVES & CONTROLS - AUTOMAÇÃO LTDA

Av. Prefeito Waldemar Grubba, 3000

89256-900 - Jaraguá do Sul - SC

Phone: 55 (47) 3276-4000

Fax: 55 (47) 3276-4060

www.weg.net/br