



User manual BoxD 850-48-2

Our InD, OutD and HelpD series are designed to complement each other. InD stands for indoor power systems, while OutD solutions are created for demanding outdoor use. HelpD is our global support team; its task is to make everything easy for you.

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1 About this document

1.1 Document content

This document contains the following sections:

- Safety instructions
- Product description
- Installation and commissioning
- Troubleshooting
- Appendix

2 Safety instructions

2.1 About legal and safety information

Please read all safety and legal information given provided here before working with any Delta products. Ignoring these instructions may result in damage to the equipment, health hazards, or loss of life.

These safety instructions are an extension of any national laws governing health and safety at work and the applicable standards, as well as any regulations of the statutory authorities.

Installation shall only be performed by trained persons familiar with the local installation regulations. The local installation regulations must always be followed (covering installations in the building and main AC distribution panels). It is also necessary to follow the instructions provided in the system user manual for installation, commissioning, operation and maintenance.

2.2 Legal statements

2.2.1 Statement of compliance

Please see the relevant product fact sheet for information.

For conformity assessment adequate analysis and assessment of risk were considered.

The equipment conforms to EMC directive 2014/30/EU, LVD directive 2014/35/EU and ROHS directive 2011/65/EU. When the user installs R&TTE to the equipment, the user of R&TTE is responsible for fulfilment of RED EU directive 2014/53/EU.

2.2.2 Limitations

The equipment is mainly intended for telecommunications purposes only. The equipment is not intended for use in applications in which the failure of the equipment could lead to death, personal injury, or severe physical or environmental damage.

Delta is not responsible for any danger or damage resulting from incorrect installation, maintenance, operation or usage of the equipment, use beyond its intended purpose, failure to observe stated instructions, and/or failure to observe the applicable safety regulations.

Delta is only responsible for components and services provided by Delta. Third party components and/or services, such as batteries, repair and/or maintenance used in and/or conducted for the equipment, are not the responsibility of Delta. Furthermore, Delta is not responsible for any malfunction or danger of, and/or damage to/resulted from the equipment caused by such third party components and/or services.

Unauthorised modifications to the equipment may result in incorrect operation and/or performance. The operator is responsible for the consequences of any modification in the hardware configuration that is made without an agreement with the manufacturer or authorised representative.

Installation, operation and maintenance of the equipment should only be performed by suitably qualified personnel with appropriate training. The operator is responsible for ensuring that personnel working with the equipment are provided with appropriate operation and safety training.

The operator is responsible for ensuring that the location of the system is treated as an electrical equipment room. These rooms must have appropriate air-conditioning and restricted access. The operator is also

responsible for ensuring that the system rack doors are securely locked and not accessible to unauthorised persons. The equipment must be installed on an incombustible base, e.g. on a concrete floor.

If the power supply to the system is not fitted with a disconnecting switch or equivalent device, the operator is responsible for fitting an appropriate disconnection switch conforming to the relevant regulations.

In general, Delta outdoor systems are intended to be used in non-weather protected location in accordance to standard ETSI EN 300 019-1-4 Class 4.1.

In specific cases, operation of equipment out of Class 4.1 shall be consulted with Delta and should be confirmed by adequate technical specification.

In general, Delta outdoor systems are intended to be stored on weather protected location in accordance to standard ETSI EN 300 019-1-1 Class 1.2.

In specific cases, storage of equipment out of Class 1.2 shall be consulted with Delta and should be confirmed by adequate technical specification.

In general, Delta outdoor systems are intended to be transported in accordance to standard ETSI EN 300 019-1-2 Class 2.2 Careful transportation.

In specific cases, transportation of equipment out of Class 1.2 shall be consulted with Delta and should be confirmed by adequate technical specification.

The Delta outdoor cabinet is delivered with some free space for additional user equipment. It will be customer's responsibility that this equipment is designed for the environment conditions available inside cabinet.

There are a few important, environmental factors that should be taken into consideration:

- a) Heat dissipation of the equipment in relation to the available capacity of the cooling system integrated into cabinet.
- b) Temperature and humidity range inside cabinet in the place of the equipment installation, strictly connected with the cooling system design (location of the cooling devices, air flow paths, etc.).
- c) Protection and durability of the equipment against air pollution and salt (protection against corrosion), this is particularly important for the systems with air ventilation (fans and filters).
- d) Protection against mechanical impacts (shocks, vibration, earthquake zones, etc.).
- e) Operation of the additional equipment should be consulted with Delta for details.

2.2.3 Maintenance

The suitable filter maintenance practice is extremely important for securing proper condition for installed equipment as well for achieving optimal operating costs.

The following points should be considered while the maintenance program is defined:

- a) Filter replacement interval should be adapted to the local condition where the system is installed.
- b) During first year of the operation user or service responsible persons should pay special attention to filter contamination level and local condition, and based on that experience the replacement interval should be adjusted.
- c) Only original filter delivered or recommended by Delta should be used for replacement – using spare parts that are not original may cause losing the warranty provided by Delta.
- d) During each maintenance visit the service person should also check if the cabinet air inlet and outlet are not blocked by any external substances or things (i.e. leaves, papers). They should be cleaned if needed.
- e) Additionally, the fans operation should be checked (abnormal noise, alarming).

Yearly air conditioning maintenance must be done according to manufacturer's operation guide.

2.2.4 Third party devices

Delta is not responsible for devices, such as batteries that are not supplied by Delta.

Delta is not responsible for any danger or damage resulting from devices not supplied by Delta.

2.3 Safety instructions

Warnings, cautions and notes are used to identify important information. They are classified as follows:



Warning! A warning means that injury or death is possible if the information or instructions are not obeyed.



Caution! A caution means that damage to equipment is possible if the information or instructions are not obeyed.



Note! Notes are additional information which may be useful to the operator.

2.3.1 General instructions



Warning! Hazardous voltages are present within the equipment when a source of electrical power is applied.

There is the risk of electrical shock from the main power supply and/or batteries.

When working on equipment with power applied, supervision of personnel is required. The supervisor must be capable of providing first aid in the event of electrical shock. Provision of an emergency switch or disconnection strap is not sufficient protection.

There is increased risk of accidents and electrical hazards when working on compact equipment due to the close proximity of components. Operation of compact equipment requires extra attention to safety.



Warning! Protective shields and other safety devices provided with the equipment must be in place when the equipment is operated.

The power system may have dual energy supply. Hazardous voltages may be present at the main power connector and within the equipment for up to 10 seconds after disconnecting the power supply. The operator is responsible for securing the proper precautions for maintenance or service purposes.

During installation and maintenance, protective shields may be temporarily removed. Use suitable insulated tools and appropriate protective clothing. Handle fuses only with tools provided for this purpose, for example, load-break switch handles.

Adequate insulation from ground potential (earth) must be provided when working on the equipment.



Warning! High temperatures present.

Localized areas of high temperature ($> 70\text{ }^{\circ}\text{C}$) may occur within the rectifier/inverter/distributor rack. Take precautions against accidental burns.



Warning! Moving parts

Devices, such as rectifiers and environmental control for cabinets contain fans. These may also continue to rotate for some time after the power has been removed.



Warning! Heavy equipment

The weight of the equipment requires suitable safety considerations. Additional personnel or lifting equipment may be needed. Where required, the weight of equipment is stated on the front of the unit.



Warning! Sharp edges

Equipment racks may have sharp edges. We recommend you to wear gloves.



Caution! Do not restrict air flow. Fit blank panels for empty rectifier slots to ensure correct air circulation inside the cabinet.



Caution! Use only suitable measuring devices. Calibrate measuring devices regularly.

2.3.2 Specific instructions

Please observe all warning labels and notifications on the equipment.

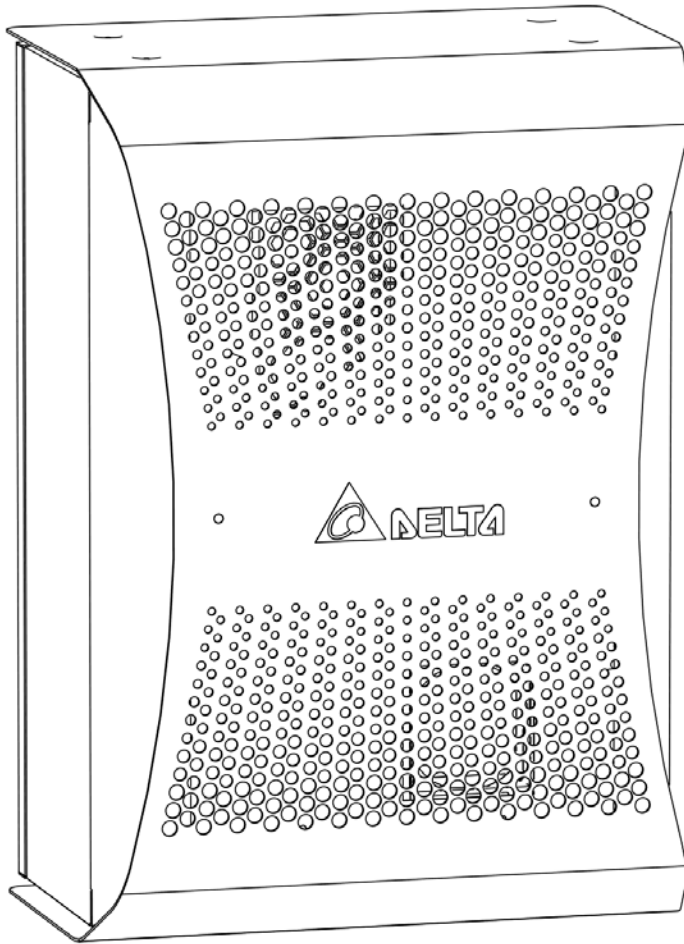
Additional warnings, cautions and notes specific to certain equipment and/or conditions are described in the context of the relevant instructions.

Please read all documentation relevant to the given task.

Where devices, such as batteries, that are not supplied by Delta are used, please read and observe all safety notices and instructions supplied by the appropriate manufacturer or supplier.

The majority of the metal parts inside cabinet are done from the steel sheets protected against corrosion by galvanic process already in the steel factory. Because of the cutting process the edges of the sheets remains not fully covered by protective galvanic layer, that is why, after some time, the small signs of the rust can be observed on the cut edges. This is a normal process, the corrosion is limited only for edges and do not create any danger to destruct the entire parts or systems.

3 Product description



The BoxD 850-48-2 HEX015 cabinet integrates all elements of DC power systems: rectifiers, DC power distribution with load and battery protection circuit breakers. Cabinet can be equipped with one type of Delta high efficient rectifiers:

- DPR 850B-48

The system operation management is supported via ORION controller.

3.1 Standard ODPS system configuration

The standard system configuration is presented below. The figure shows the maximum artificial configuration, presenting the location of each component in different variations. The specific project configuration can be different – this depends on the customer's requirements.

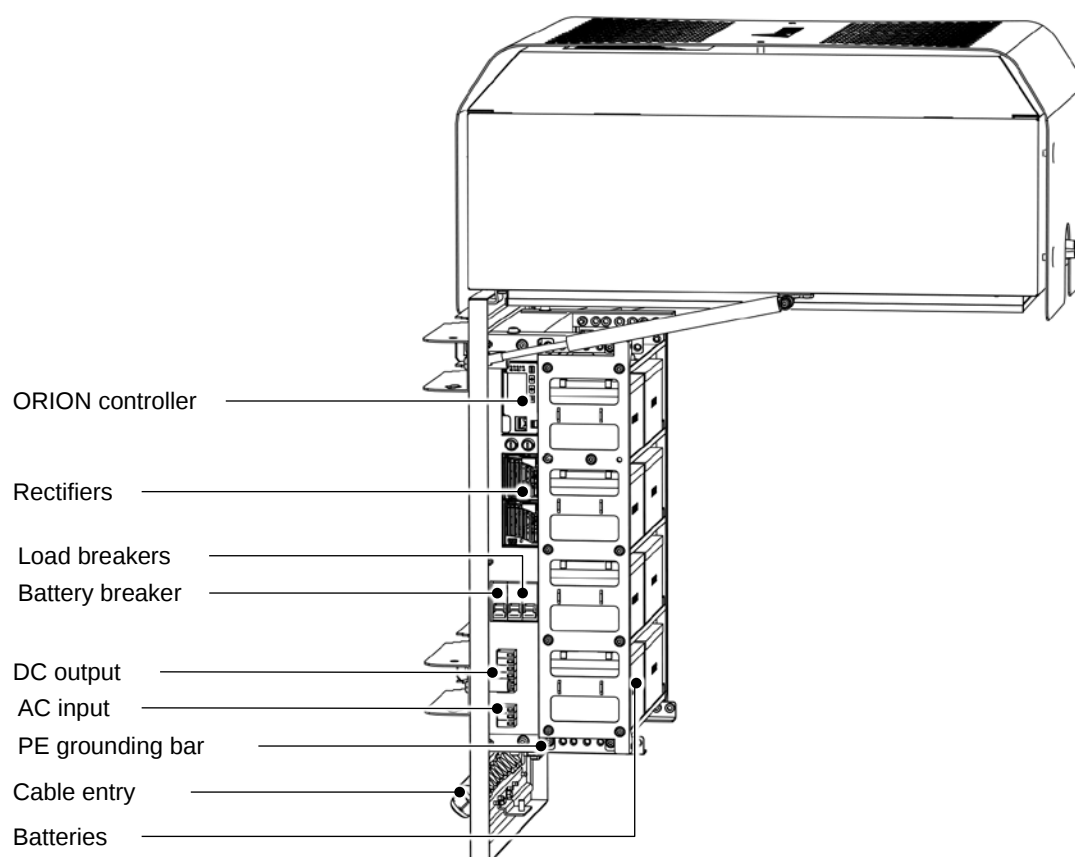


Figure 1. BoxD 850-48-2 HEX015

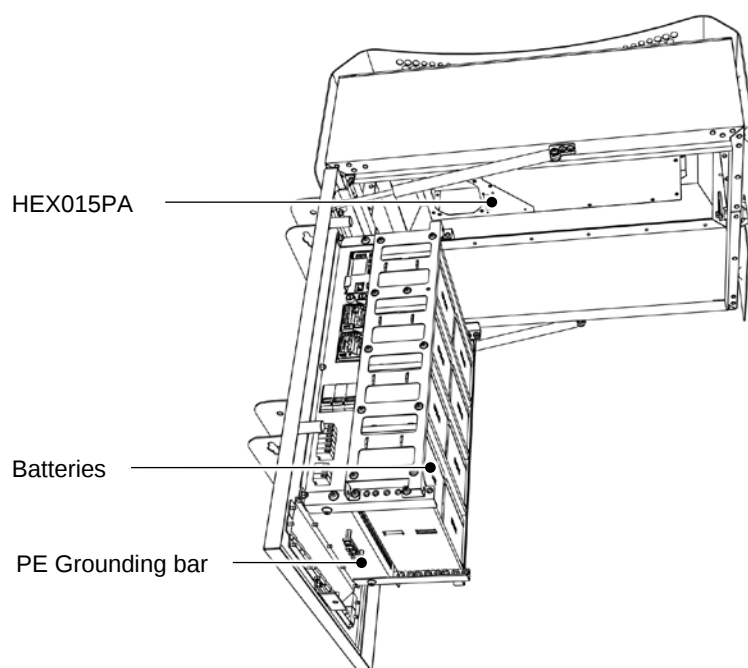


Figure 2. BoxD 850-48-2 HEX015

3.2 AC/DC power shelf configuration

The system in its standard version is designed to be supplied via one phase (230 / 400 Vac; L, N, PE). All elements and modules are covered by the shelf cover.

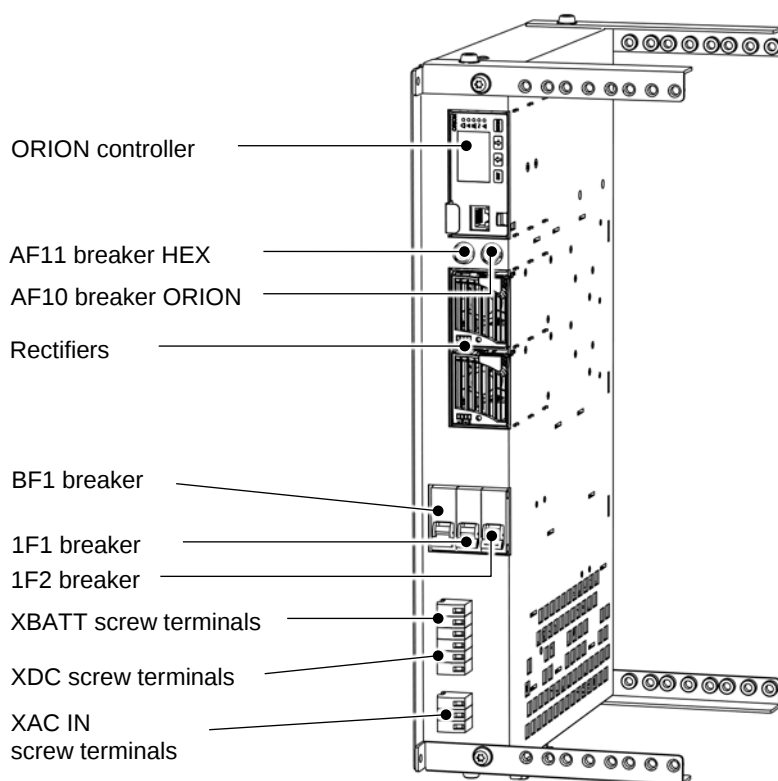


Figure 3. AC/DC power shelf (front view)

XAC IN – AC screw terminals
 XDC – Load screw terminals
 XBATT – Battery screw terminals
 BF1 – MCB for batteries
 1F1÷1F2 – MCB for load distribution
 AF10 – fuse for ORION controller
 AF11 – fuse for HEX015PA

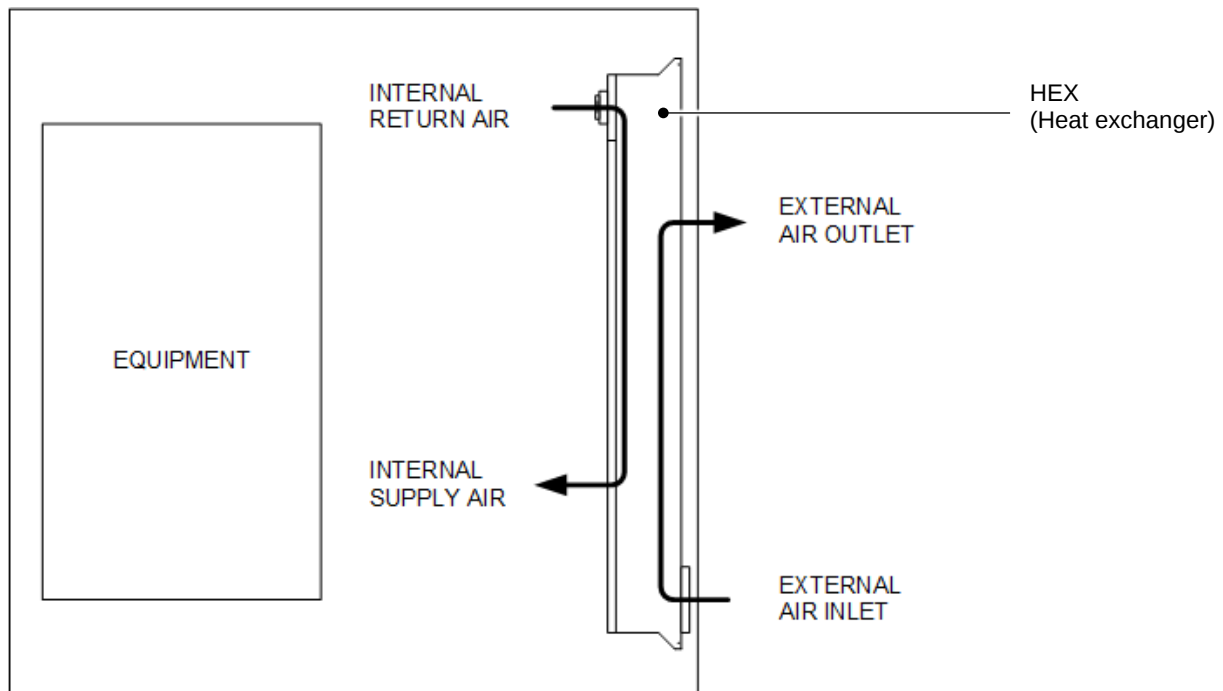
3.3 Climate control

An integrated climate management system controls the temperature within the cabinet, providing optimal operating conditions for the equipment and battery. Different cooling/heating units (e.g. air conditioners, heat exchangers, fans and air filters, heaters) are available.

The power system controller (ORION) can be used as a climate controller to provide optimal climatic conditions for the equipment by eliminating problems caused by high or low temperatures, which are normally present in the outdoor environment.

3.3.1 Heat exchanger

The heat exchanger (HEX) is designed for direct air to air heat exchanger to remove the heat in the cabinet. The internal and external air circulation loops of the HEX are separated to prevent the entry of dust, humidity and dirt. With the forced convection functions of the axial fan, warm air generated by the equipment will be sucked into the upper inlet and converted to cold air by the hex core to cool down the equipment, while on the opposite side cooler air in the environment will be drawn into the lower inlet and bring the heat of the hex core out from the upper outlet. The thermal exchange path is shown in the figure below.



3.3.2 HEX alarm

HEX alarm is available in BoxD cabinets for version with controller. The signal alarm is transferred to the ORION controller (via digital alarm input) and it is signalled by controller alarm LEDs and presented on the display according to the configuration.

4 Installation and commissioning

4.1 Before you begin

Step 1 Ensure that you have all the equipment needed to make a proper installation of the system.

Step 2 Also ensure that grounding terminals and DC distribution are properly available.

Step 3 Take care that the regulations of IEC 60364 and CENELEC HD384 concerning installation and assembling of telecommunication and electrical equipment have been noticed. The local regulations and special instructions must also be noticed during the work. When choosing the place of the installation, please notice that the cooling air must flow without restrictions through the ventilation holes. The system must have enough space in front of it for operation and service functions. Notice the direction of the cabling and the required space of the other equipment.

4.2 Unpacking the system

Step 1 Check that the received cargo is according to the packing list.

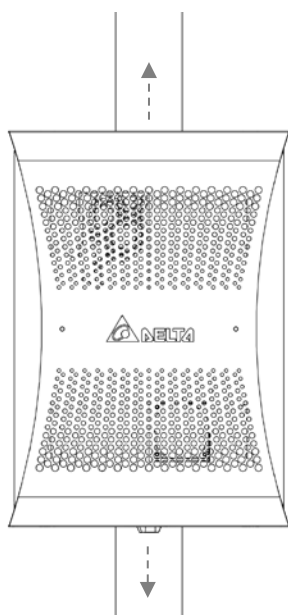
Step 2 Ensure that the rack and the equipment are not damaged during transportation.

4.3 Installation

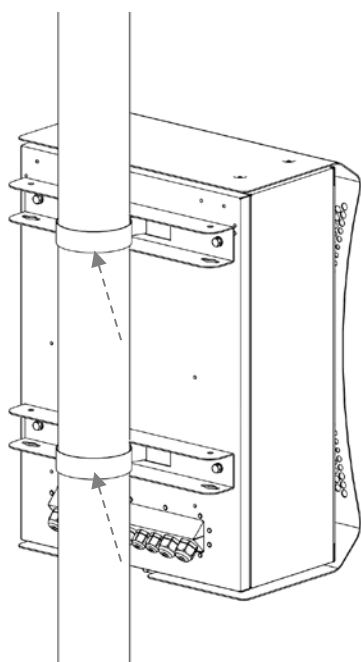
The cabinet can be installed on the wall or on the pole.

4.3.1 Pole mounting installation

Step 1 Move the cabinet up to the proper height.

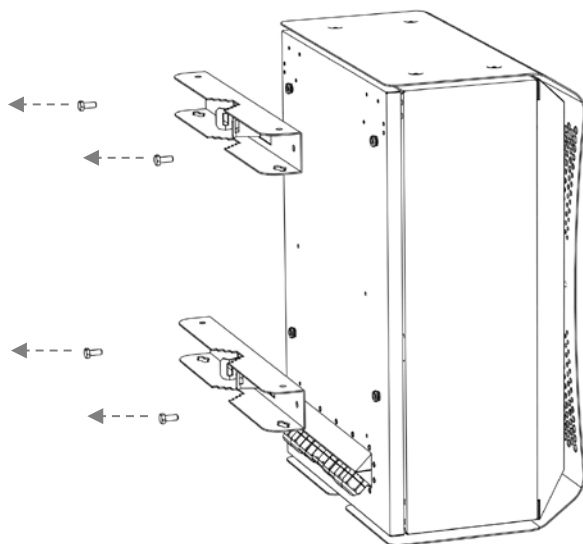


Step 2 Use special band to fix the cabinet on the pole.

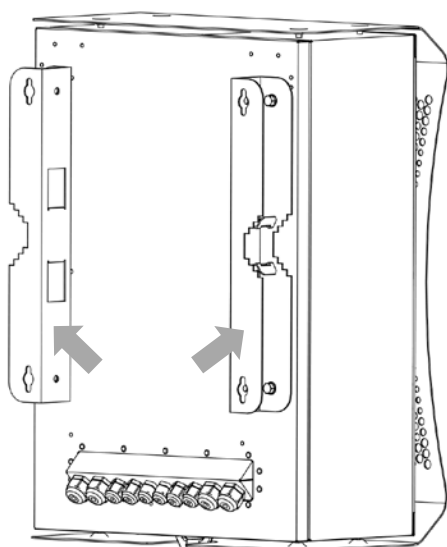


4.3.2 Wall mounting installation

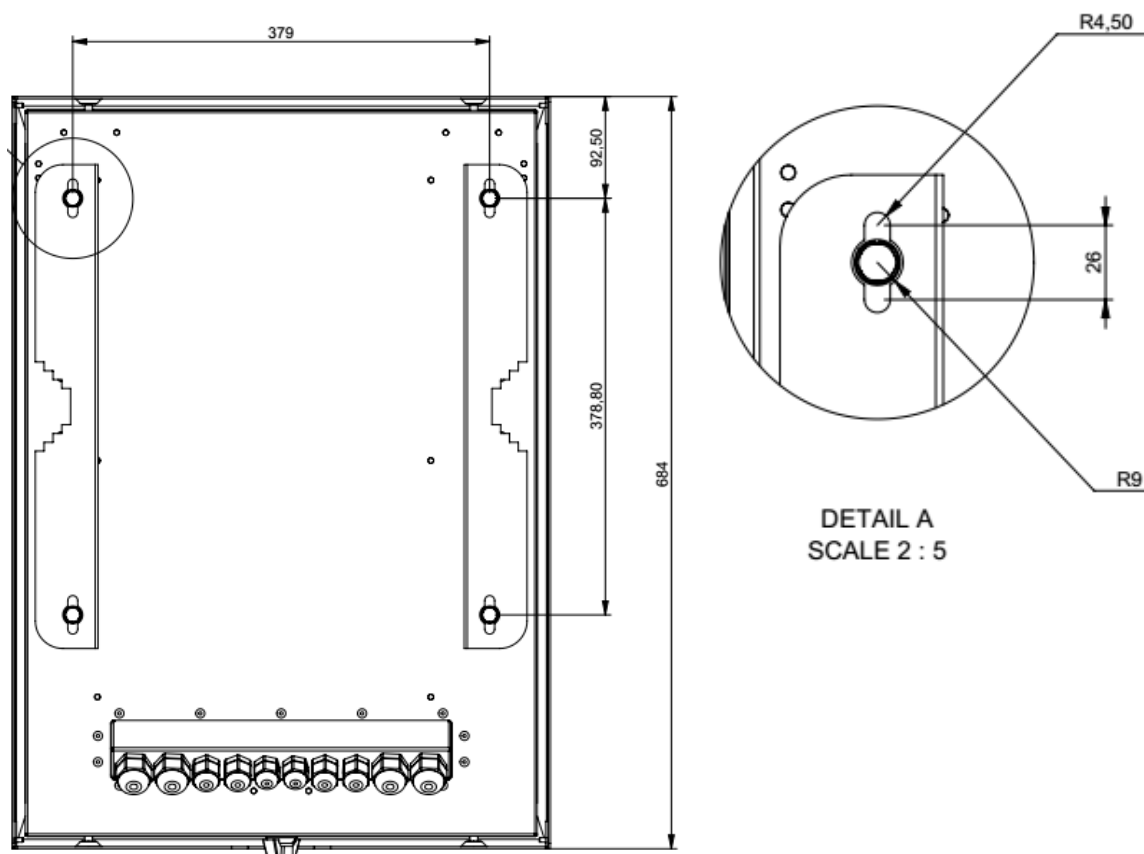
Step 1 Unfix four sets of M8 stainless steel fasteners (screw + spring washer + flat washer) and disassemble two wall brackets.



Step 2 Mount two pole brackets in horizontal position using four sets of M8 fasteners.



Step 3 Drill the holes in the wall according to the pictures below.



Step 4 Insert e.g. a hook or a special screw to the drilled holes with which the cabinet can be tightened.

Step 5 Install the cabinet on the wall and tighten it.

4.3.3 Cabling



Warning! All circuit breakers must be in the OFF position.



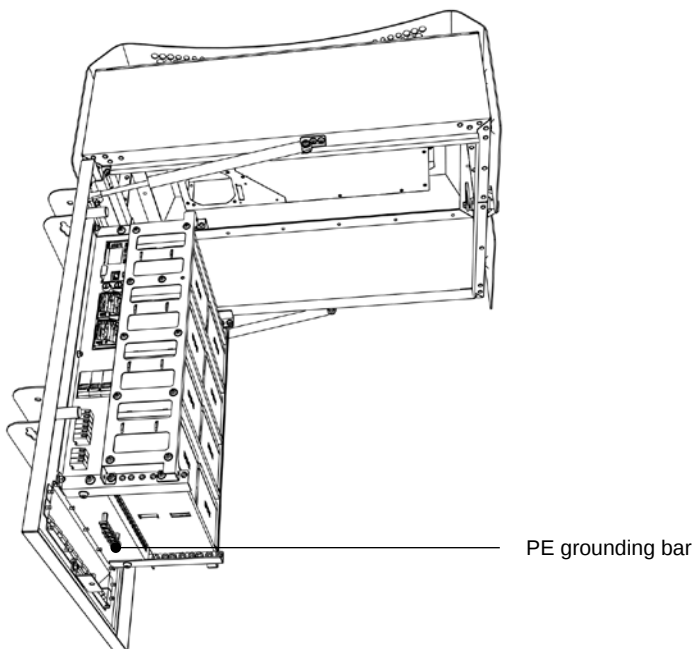
Note! The input / output cables can be inserted into the cabinet from the bottom.

4.3.3.1 Grounding

Grounding points are located only inside cabinet.

4.3.3.2 Internal grounding connections

All necessary groundings are connected to the PE grounding bar like shown in the picture below. Unconnected clamps can be used for customer purposes.



4.3.3.3 AC main connection

The AC input terminals are located on the left side of the AC/DC power shelf.

The system is prepared to be supplied via one phase (L, N, PE).

Step 1 Connect the AC line cables to the AC input terminals (XAC IN) – PE cable to the PE terminal, N cable to the neutral terminal and phase cable (L) to the phase terminal.



Note! Use the wiring diagram supplied with the installation documentation to ensure the AC power supply has been correctly connected.



Note! The AC cables should be protected in external AC distribution board. Suggested values for external AC protection are presented below (for maximal installed rectifier power of 1700W).

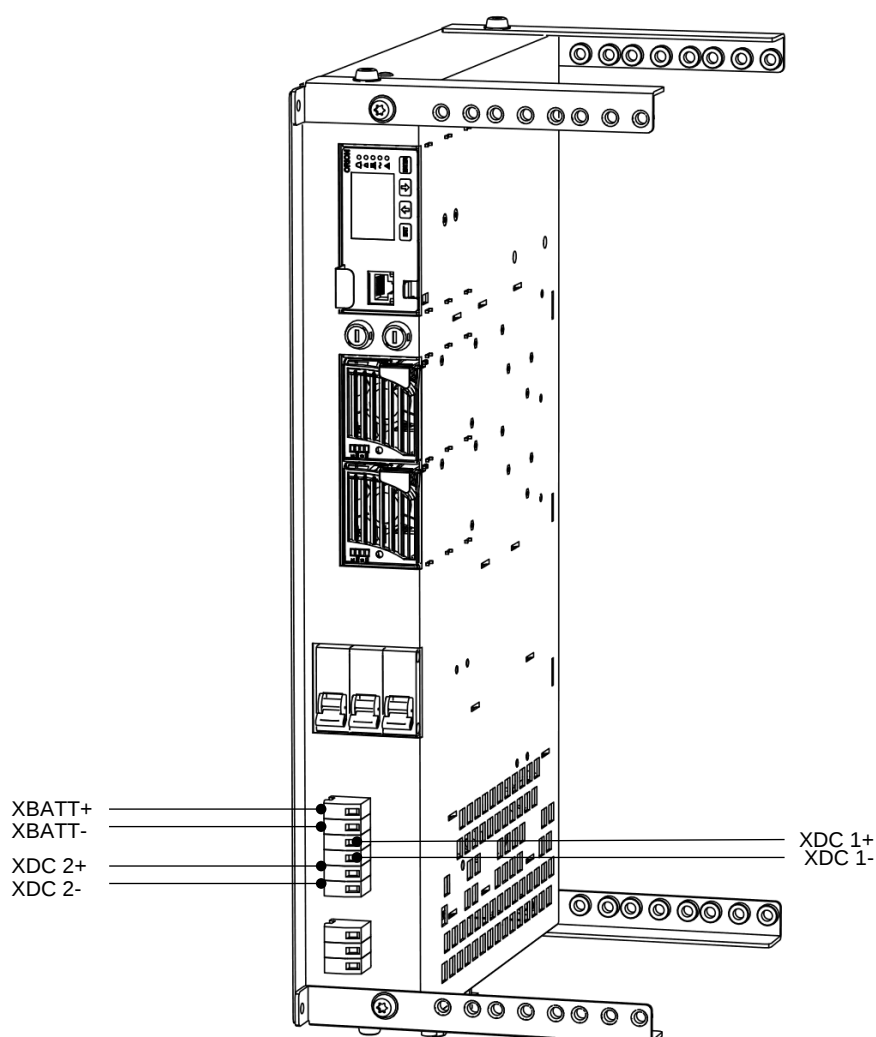
AC mains configuration	AC protection (external)	AC cable* (minimum cross section)
1L + N + PE	1P C16A	3 x 2,5 mm ²

Table 1. AC input recommendation

*) Values are according to IEC 60950. Local installation regulations may however require increased sizes depending on maximum ambient temperature and cable routing method.

4.3.3.4 DC load connections

- Step 1** Connect the distribution cables to the DC power supply system.
The plus cables are connected directly to the screw terminals XDC 1+ or XDC 2+, and the negative cables are connected directly to the screw terminals XDC 1- or XDC 2-.
- Step 2** Connect the battery cables to the DC power supply system.
The plus cable is connected directly to the screw terminal XBATT+, and the negative cable is connected directly to the screw terminal XBATT-.





Note! The maximum cable size for the screw terminal is 4 mm².

4.4 Commissioning

4.4.1 Starting up the DC system

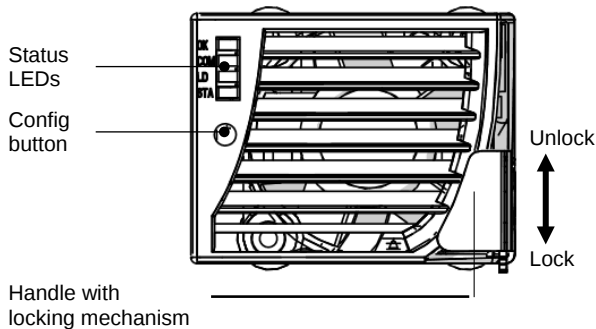


Warning! Protective shields and other safety devices provided with the equipment must be in place when the equipment is operated.



Note! Unused rectifier slots must be covered with designated blank cover panels.

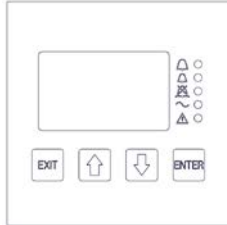
DPR 850B-48



- Step 1 Install the rectifiers to the AC/DC power shelf of the cabinet starting from the far-bottom slot and continuing to the top.
- Step 2 Rectifier is equipped with automatic locking mechanism. It is locked after you hear a special "click".
- Step 3 Switch ON the AC main power supply to the system.
- Step 4 Check that all rectifiers LEDs indicate "AC ON" or "OK" status.
- Step 5 For system with the batteries check the battery polarity by measuring the voltage over the battery circuit breaker.
The voltage should be at most a few volts. If the voltage increases that, the reason for the error must be checked and solved before the load circuit breaker is switched on. The reason may be e.g. wrong polarity of the battery or a single block or a failed battery cell.
- Step 6 For system with batteries switch ON the corresponding and connected battery circuit breaker(s).
- Step 7 Switch ON the DC distribution circuit breakers connected to the load.

4.4.2 Controller calibration

The system controller is pre-calibrated (including rectifiers) by Delta Energy Systems. Calibration is not needed unless changes have been made to the controller hardware or the controller display is different from the measurements made with calibrated test equipment during maintenance.



Controller calibration should be performed if the actual measured value differs more than ± 0.1 Volts from the value indicated by the controller.

If the measured actual value is within ± 0.1 Volts of the value indicated by the controller, go to Step 9.

Calibrate the controller system voltage according to the following instructions.

Step 1 Measure the system voltage between the positive bus bar and negative terminal on the DC output circuit breaker.

Step 2 Check the value "Usys" from the display.



Note! The default factory setting for output voltage is always 53.5 V.

Step 3 Login to the ORION Configuration and Supervision Tool.

Step 4 Go to menu: *Configuration* → *Measurements*.

Step 5 To open the "Usys" analogue measurement dialogue, click "Edit".

Step 6 Click on the "Calibrate" button for the "Usys" Analogue measurement.

Step 7 In the Calibration dialogue, enter the actual measured value and click "Calibrate".

Step 8 Logout from the ORION Configuration and Supervision Tool.

Step 9 Check the battery polarity by measuring the voltage over the battery circuit breaker.

Step 10 The voltage should be at most a few volts. If the voltage increases, the battery polarity is not correct and must be changed by switching the "+" and "-" cables connected to the batteries.

Step 11 Switch on the battery circuit breaker(s).

Step 12 Switch on the DC distribution circuit breakers connected to the load.

4.4.3 Testing the rectifiers

The following must be done with a suitable DC load.

This is to test that the rectifiers can deliver power. The method is to first discharge the batteries for a while and then recharge them. The controller carries out the procedure which decreases the rectifier voltages

below the discharging voltage of the batteries. As a result, in the case of battery failure, the system will not fail.:

- Step 1 Log in to the ORION Configuration and Supervision Tool.
- Step 2 Go to *Configuration* → *Battery* → *Battery Test* and click “Start”.
- Step 3 The discharge process takes approximately 15 minutes.
- Step 4 To stop the battery test from the controller, click “Stop” and exit the controller Web user interface. The rectifiers will recharge the battery.

4.4.4 Testing the control and alarm system



Warning! Voltage values must be set according to the battery manufacturer's specifications. Incorrect voltage settings may lead to possible damage to the batteries or danger of explosion.



Caution! Ensure that the equipment settings conform to the specifications for the system configuration. Incorrect settings may lead to system malfunction or damage.



Caution! Alarm limit values (trigger thresholds) must be set correctly. Incorrect settings may trigger false alarms and cause rectifier/inverter modules to switch off.

4.4.4.1 Confirming the configuration

Values are all pre-set at the factory and should not be changed without a proper reason.

Check the configuration either from the ORION Configuration and Supervision Tool or from the UIM/UIL display. The web user interface is protected against unauthorized access by username and password.

- Step 1 Login to the ORION Configuration and Supervision Tool.
- Step 2 Confirm the following settings:

Settings	Web user interface	UIM/UIL
Alarm limits	Configuration > Signal Processing Engine > Event Definitions	CONFIGURATION > EVENT > THRESHOLDS
System voltage	Configuration > Battery > Float Charge	CONFIGURATION > BATTERY > FLOAT
Temperature Compensation	Configuration > Battery > Temperature compensation	CONFIGURATION > BATTERY > TEMP. COMP
Battery Test	Configuration > Battery > Battery Test	CONFIGURATION > BATTERY > BATTERY TEST
Equalize	Configuration > Battery > Equalize	CONFIGURATION > BATTERY > EQUALIZE

Table 2. Confirming the configuration

4.4.4.2 Testing the alarms

The operation of the alarm relays and LEDs can be checked in the ORION Configuration and Supervision Tool.

Step 1 Go to *Alarm* → *Maintenance*.

The *Alarm Maintenance* dialogue allows manipulation of alarms for maintenance and testing purposes.

An alarm set to the “Frozen”, “Set” or “Reset” state does not react on the source event as defined in the event conditions, but stays in the current position in case of “Frozen”, or changes to “Active” in case of “Set”, or changes to “OK” in case of “Reset”.

4.4.4.3 Checking the fuse monitoring

Step 1 Switch ON all the battery circuit breakers and the DC distribution MCBs which have loads connected.

Step 2 Switch the first load and battery circuit breaker to OFF.

Step 3 Ensure the alarms are indicated as configured.

Step 4 Switch the circuit breaker to ON.

Repeat Step 1 to Step 4 for all load and battery circuit breakers.



Note! When testing the battery fuse alarm, it may take a few minutes until the battery voltage decreases sufficiently (>300 mV).
The active alarm can be read from the UIM/UIL display: go to “3.1 ALARM”.

4.4.4.4 Testing the rectifier and mains failure alarms

Test the rectifier failure alarm by removing the rectifiers one by one from the system and check the following:

Check the battery current from the display:

Step 1 Removing 1 rectifier + battery current (I_{batt}) positive → Non-Urgent Alarm

Step 2 Removing 2 rectifiers or more (not all) + battery current (I_{batt}) negative (battery is discharging)
→ Urgent Alarm

Step 3 Removing all rectifiers: load current (I_{load}) equals battery current (I_{batt})
→ Mains Failure

The active alarm can be read from the display menu “2.1 ALARM”.



Note! During the test Usys Low and Usys High alarms may occur, which should be omitted at this stage.
If there is no load connected to the system, no module alarm will occur. The additional module alarm (RF) does not light up any LEDs on the controller. The alarm can be seen in the menu display, and it is also seen in a remote location. It can be measured in the alarm cable (see alarm connections).

Step 4 Reconnect all rectifiers.



Note! If there are no load and batteries connected to the system, no mains failure alarm will occur.

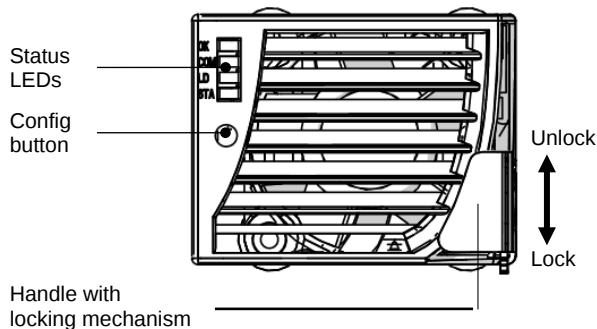


Note! After testing, put all system covers back in their correct places

5 Maintenance

5.1 Replacing user interface (DPR 850B-48)

DPR 850B-48



LED “OK” – rectifier status indicator
LED is lit if the rectifier works properly.

Indicator is turned OFF or blinks if the rectifier has got a failure or works in special mode (see troubleshooting instructions).

LED “NL” – output current indicator
LED is turned OFF if the rectifier is loaded normally (5 - 100 %).
LED is lit yellow or blinks if the rectifier is not loaded or if it is overloaded.

LED “COM” – status of the communication with ORION controller
LED is lit green if the rectifier communicates with the ORION controller via IMBUS properly.
LED is turned OFF or blinks if the communication is not working properly or if the rectifier works in special mode (see troubleshooting instructions).

LED “STA” – indication of latched shut down over-temperature protection (OTP) or over-voltage protection (OVP).

“Config” – button for the special rectifiers configuration into systems (i.e. reset to default setting)

5.2 Replacing rectifier in a running system

Delta rectifiers are hot-pluggable in operation. No special actions are needed related to switching OFF/ON the rectifiers during replacement. To replace the rectifiers please do the following:

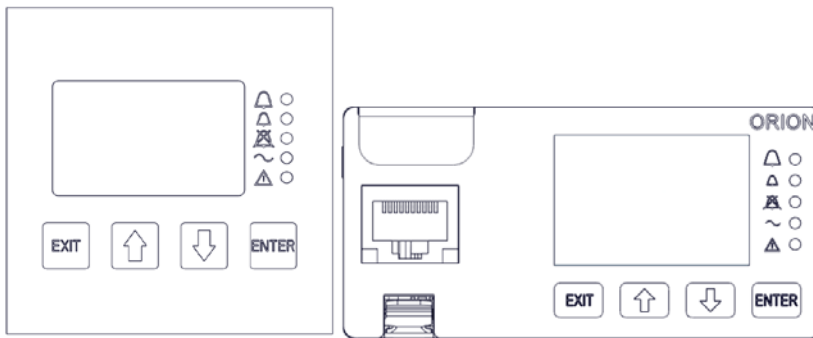
- Step 1 Unlock handle of the rectifiers to be replaced. Refer to the adequate pictures in the section [5.1 "Replacing user interface \(DPR 850B-48\)"](#).
- Step 2 Pull the rectifiers using handles, and remove the rectifier modules from the shelf.
- Step 3 Place the new rectifiers into their rack position according to the commissioning instructions.
- Step 4 Check the system (controller) for alarms.

6 Quick start guide, controller ORION

The ORION controller is preconfigured at the Delta Energy Systems factory according to the system configuration. It is not recommended to change the settings applied in the outdoor system as it ensures the proper operation of the whole system and of the user equipment installed in the cabinet. If an adjustment to specific customer requirements is needed please contact authorized service personnel to make the modification in the proper and safest way.

6.1 UIM – User Interface Module / UIL – User Interface Local

6.1.1 UIM / UIL keys



Press the **ENTER** key to:

- activate functions
- change parameters
- confirm changes
- move the control one level down on the menu tree

Press the **EXIT** key to:

- exit a menu
- break an input
- move the control one level up on the menu tree

Press the **arrow buttons** to:

- move the cursor
- get a new menu
- get new menu options
- decrease a parameter value
- increase a parameter value

6.1.2 Default password



The default password is the following key sequence:

arrow up – arrow up – arrow down – EXIT – EXIT – ENTER

6.1.3 Changing parameters

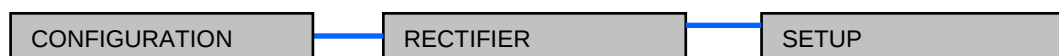
Choose the submenu or parameter to be changed by pressing of the ENTER key and change the value using up/down arrow keys and confirm by pressing ENTER key.

Example:

Defining rectifier functions

This menu is used when the number of configured rectifiers should be changed, for example if another rectifier is added, or to change number of failed rectifiers for activating of an alarm

From the main menu select:



From the Setup menu select **RM NUMBER** (define correct number of rectifiers).



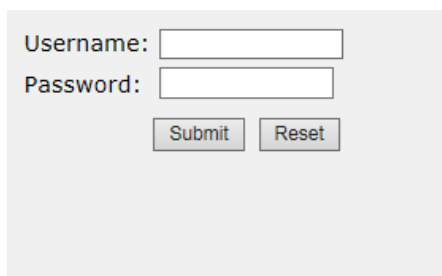
For detailed configuration instructions of the controller ORION please refer to attached CD.

6.2 Web interface – ORION Configuration and supervision tool

Through this interface the system status can be viewed and the system behaviour can be configured.

To access the system configuration through web interface it is necessary to connect a computer with ORION controller with LAN cable (straight or crossed).

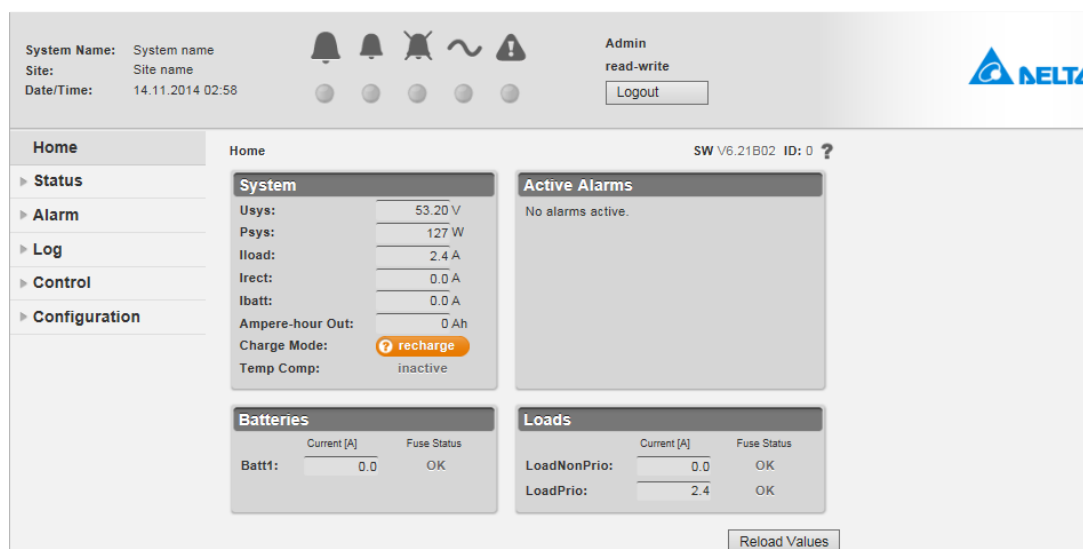
Any web browser can be used to access ORION. Run the web browser on the computer and write to the web browser's address line default address 192.168.100.100. Login page appears:



Username:

Password:

After inserting your username and password you will be allowed to access the system settings.



Accessible parameters depend on user privileges assigned by administrator.

7 Contacting Delta customer service

If an alarm or specific problem cannot be resolved, please contact your nearest Delta office or Delta representative for further assistance. Please have the system type and serial number ready before contacting Delta.

8 Technical specifications

1. Input	
AC connection	1L + N + PE
Nominal voltage	1 x 230 V _{RMS}
Voltage range	80 - 300 V _{RMS}
Frequency range	45 - 66Hz
Current max. / phase	8 A
Screw terminals / cable	3 x 2,5 mm ²
Input protection recom.	C16A
AC OVP (SPD)	Type II (optional)

2. Output	
Voltage range	42-58 V _{DC} ; 54 V _{DC nom.}
Power, nominal	1700 W (2x 850 W)
Output current (max)	40A (N + 1 redundancy)
Load breakers	Priority load 2 x 16A
Battery breakers	1 x 16A
LVD (battery)	40 A (optional)
PLD	No

3. Climate management	
Heat exchanger (HEX)	HEX015PA-001
Cooling capacity	15W/K
Rated voltage	DC 48V
Rated current	0,66A

4. General	
Height, overall	684 mm
Width, body	485 mm
Depth, body	369 mm
Weight, system	21 kg
Rectifier efficiency	95,2 %
Ambient temperature	-45 °C to +45 °C
ETSI EN 300 019-1-4	Class 4.1
Relative humidity	95 % max, non cond.
Safety	IEC/EN 60950
EMC	EN 300 386
Protection	IP 55
Controller	ORION (optional)
Rectifier unit	DPR 850B-48

5. Ordering	
Product number	5017188000
Description	BoxD 850-48-2



Delta EMEA Service Contacts

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About Delta

Delta, founded in 1971, is a global leader in power and thermal management solutions. Our mission is “To provide innovative, clean and energy-efficient solutions for a better tomorrow,” and our businesses encompass Power Electronics, Energy Management, and Smart Green Life. Delta has sales offices, manufacturing facilities and R&D centers worldwide. In 2014, was ranked at the highest A-level of the Climate Performance Leadership Index of the Carbon Disclosure Project (CDP).

Since 2011, Delta is part of the Dow Jones Sustainability Indices (DJSI) World Index.



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