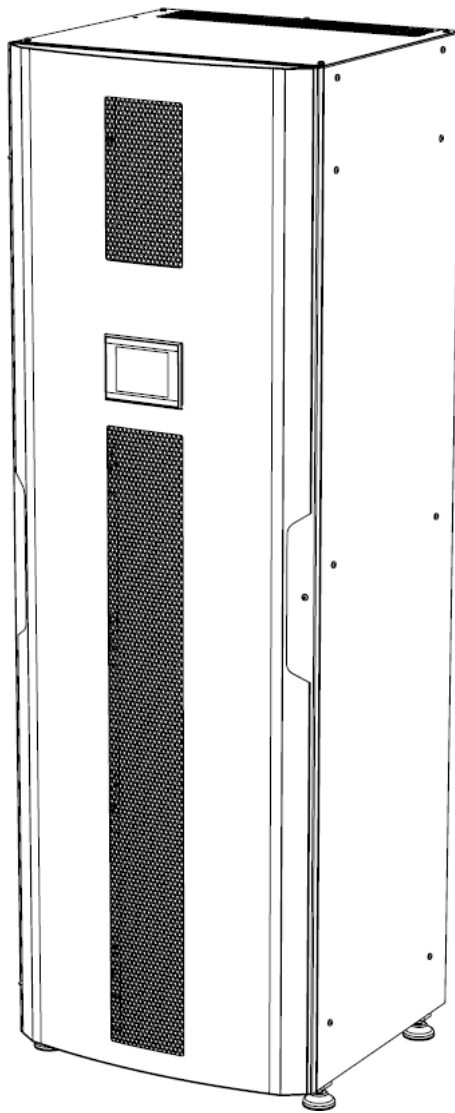


# Electrical Energy Storage (EES) *CABINET, Ferroamp*





Important information

Read carefully

Keep this information for further reference

THIS QUICK GUIDE IS ONLY INTENDED TO BE USED BY INSTALLATION PERSONNEL WITH PREVIOUS INSTALLATION EXPERIENCE AND FULL UNDERSTANDING OF THE PROCEDURE AND SAFETY WARNINGS EXPLAINED AND DESCRIBED IN THE MORE EXTENSIVE **INSTRUCTION MANUAL EES, Ferroamp (73-H010)**

IF UNCERTAINTY ARISES, ALWAYS REFER TO **INSTRUCTION MANUAL EES, Ferroamp (73-H010)**

THE INSTRUCTION MANUAL CAN BE DOWNLOADED AT : <https://www.nilar.com>

## WARNING

This product contains powerful battery packs (NiMH) and is supplied by multiple hazardous electrical sources. Beware of stored and residual energies.

Obey local regulations for live working when casing/door is open.

Wear electrically insulated gloves when handling battery packs. Battery surfaces may carry hazardous voltage due to lowered insulation resistance. Do not place battery packs on conductive surfaces.

Risk for electric shock and arcing if product is used incorrectly.

The battery packs cannot be turned off electrically. Please note:

- Work only with one battery pack terminal at the time.
- Rupture disc may release electrolyte during abnormal use. We therefore recommend wearing safety glasses.

Risk for electrical hazards if product is exposed to rain or moisture.

Do not operate the product with suspected failures. If you suspect that the product is damaged, have it inspected by qualified service personnel.

Do not block or cover the rupture disc outlet on the battery pack.

If a fire occurs, it can be extinguished by using CO<sub>2</sub>. Ensure that fire extinguishers are available.

## CAUTION

If a battery pack is damaged mechanically, the following may occur:

- High heat generation on the surface of the battery cells.
- Electrolyte may escape.
- Eventual smoke from the battery packs can irritate the skin, eyes and respiratory system.

Therefore, follow these guidelines:

- Do not open the battery packs.
- Do not modify or mechanically damage the battery packs.
- Operate the EES only within the allowed operating range.
- Do not short-circuit the battery packs.
- Do not continue to use the battery packs after identified as faulty.

It is required that a smoke alarm, preferably with connected surveillance function, is installed in close and strategical connection with the installation of the product. Always install the product in a well-ventilated location. Furthermore, the installation of a gas alarm that warns in case of high levels of hydrogen is recommended.

To avoid potential hazards, use this product only as specified.

Do not operate the product with covers removed. If covers are removed during e.g. repair, do not touch any exposed connections.

The product shall not be exposed to liquids (not even dripping or splashing) and objects filled with liquids must not be placed on or close to the product.

Remove personal metal items such as rings, bracelets, necklaces, and watches when physically handling the product since it can result in a short-circuit current causing severe burn.

Keep product surfaces clean and dry.

# PERSONAL PROTECTIVE EQUIPMENT (PPE)

Always use PPE during handling and installation of product. At minimum this includes safety shoes with steel toe, safety glasses and electrically insulated gloves:



# WARNING & CAUTION SYMBOLS

The following warning and caution symbols are used throughout this document:



WARNING  
HAZARDOUS  
VOLTAGE

WARNING  
CRUSH HAZARD

GENERAL  
CAUTION

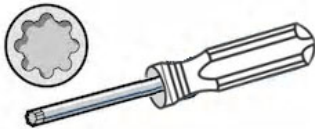


CAUTION  
HEAVY  
WEIGHT

# TOOLS & ACCESSORIES

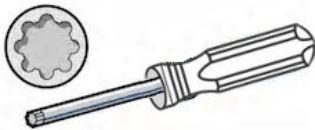
TXD 30

Torx screwdriver, size 30



TXD 20

Torx screwdriver, size 20



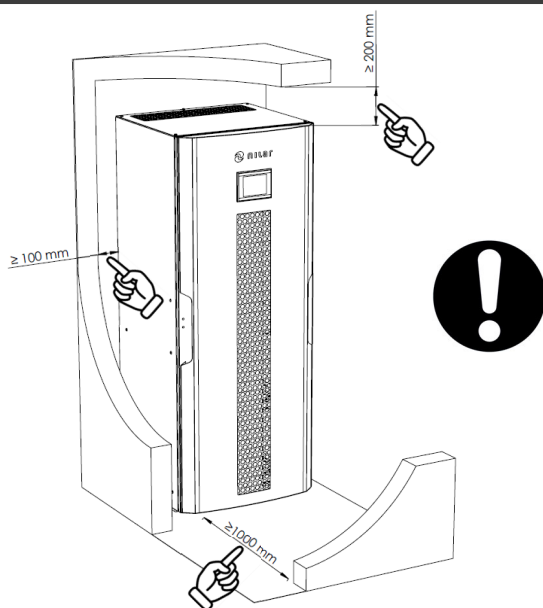
HXD 5

Hex screwdriver, size 5



# 1

1



Ensure appropriate space requirements of the cabinet.

If required, adjust support legs.

2



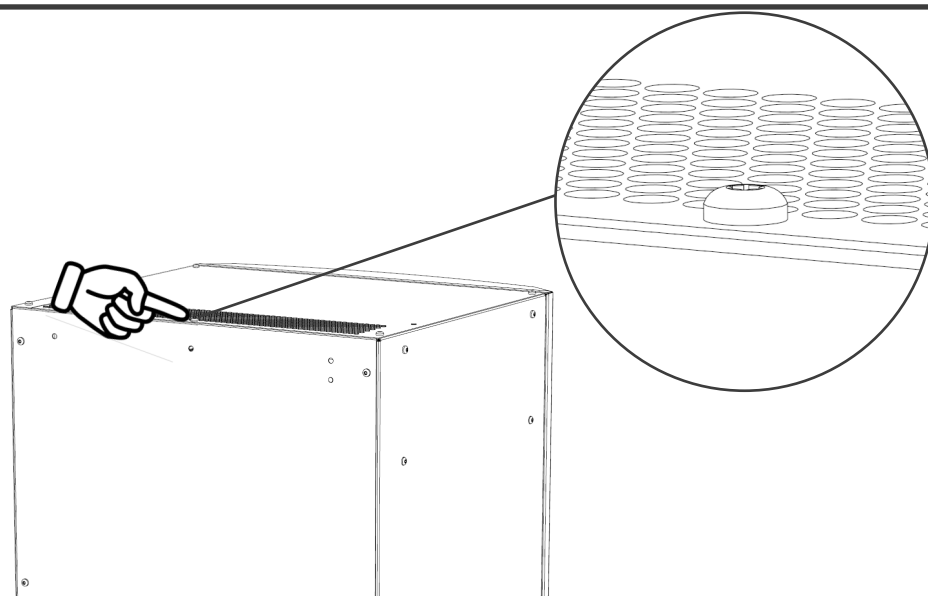
**FOR PRODUCTS: 21-0005, 21-0008, 21-0011, 21-0014**

**→ CONTINUE WITH INSTALLATION STEP 3**

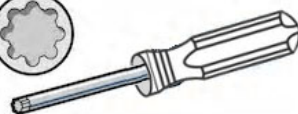
**FOR ALL OTHER PRODUCTS:**

**→ GO DIRECTLY TO INSTALLATION STEP 9**

3



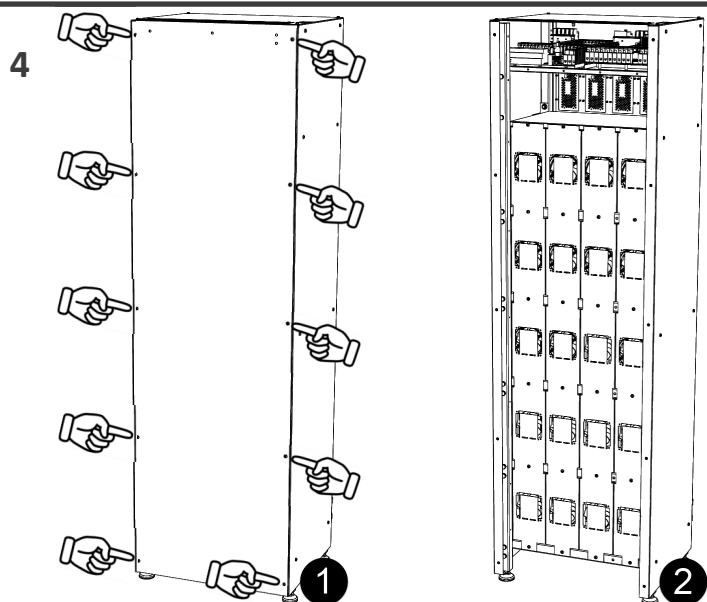
Remove the screw in the center of the top cover.



HXD 30



x 1



NUMBER OF SCREWS VARIES  
DEPENDING ON CABINET SIZE

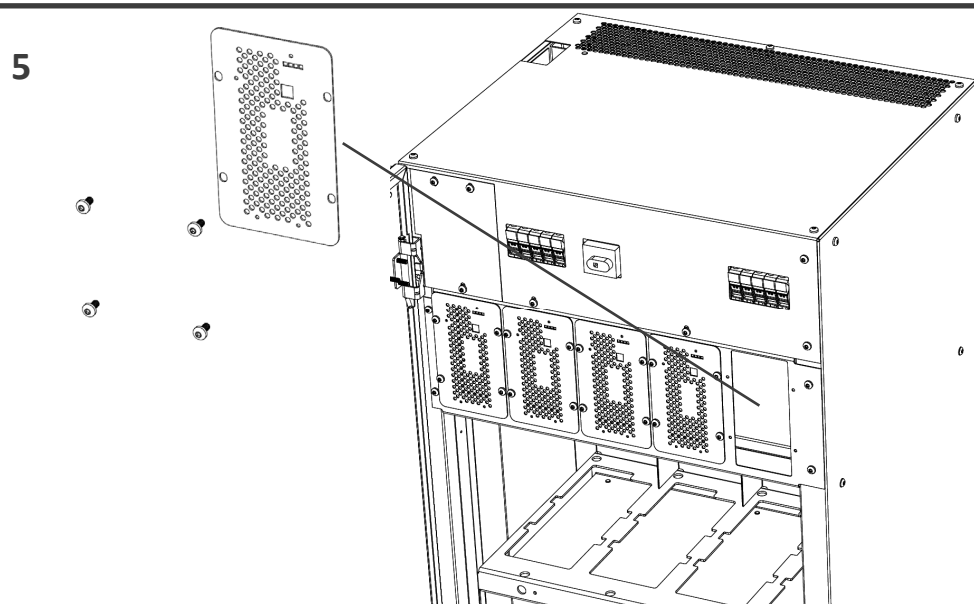
**Remove the screws of the back-plate and remove the backplate.**



HXD 30



x 10 (maximum)



NUMBER OF ESO COVERS  
AND SCREWS VARIES DEPEN-  
DING ON THE NUMBER OF  
ESO UNITS

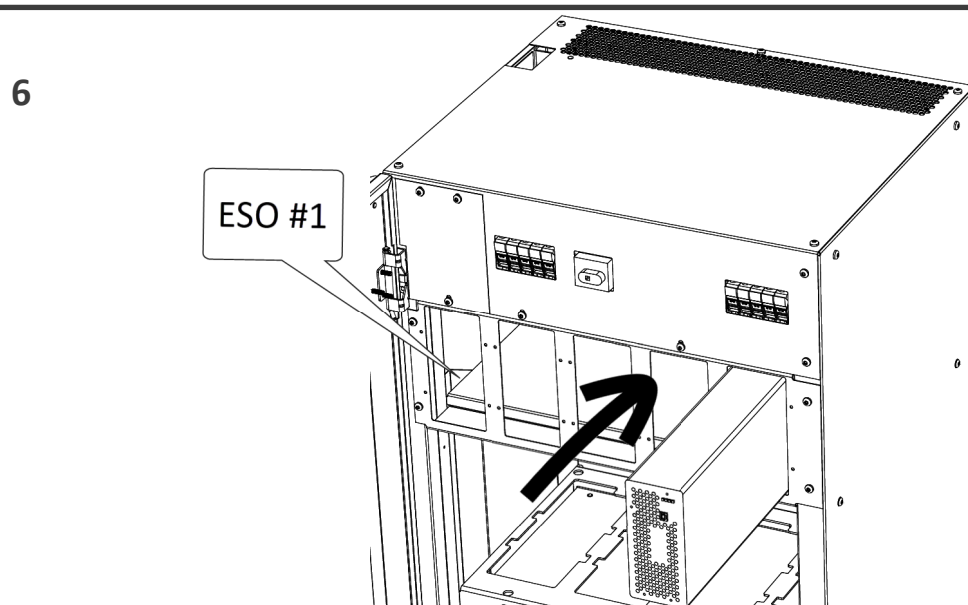
**Open the front lid and remove the screws of the ESO covers and remove the ESO covers.**



HXD 30



x 20 (maximum)

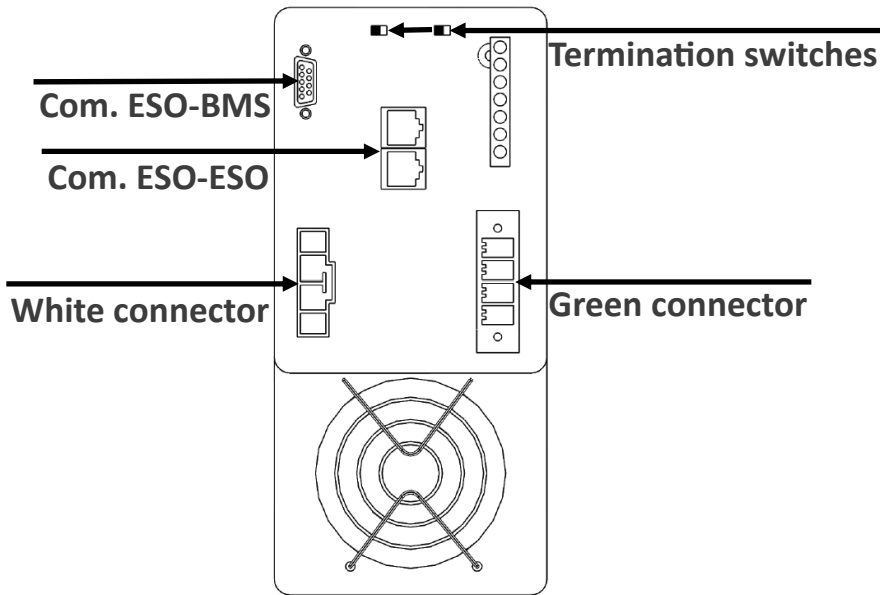


SHELF SLOT LAYOUT AND  
NUMBER OF ESO UNITS  
VARIES DEPENDING ON  
CABINET SIZE

APPOINTED ESO #1  
= ALWAYS THE FURTHEST TO  
LEFT

**Lift and slide the ESO units into their ESO shelf slots.**

7

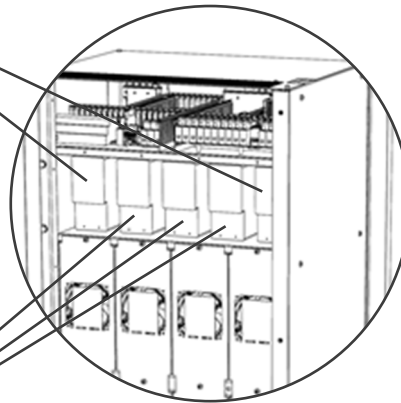


Interconnect all ESO units to each other with the separately supplied RJ45 cables (Com. ESO-ESO) to establish a communication bus.

Connect the pre-routed D-sub cable located above the ESO shelf slot #1 to the D-sub connection of the ESO unit located in ESO shelf slot #1 (Com. ESO-BMS).

8

Termination switches settings



Termination switches settings

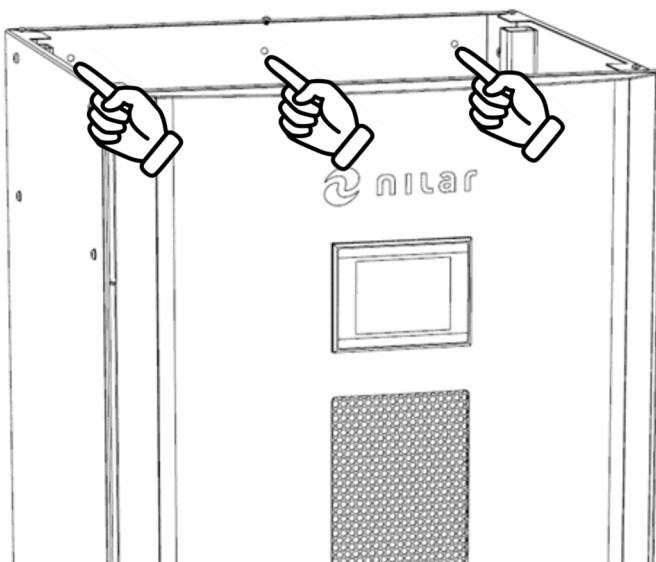


The outermost ESO units\* act as communication termination units and therefore the settings of the termination switches differ from the remaining ESO units. Set the switches on the backside of the ESO units accordingly.

Refit the backplate and the ESO covers.

*\*If the system setup only consists of one (1) or two (2) ESO units, these act as termination units*

9



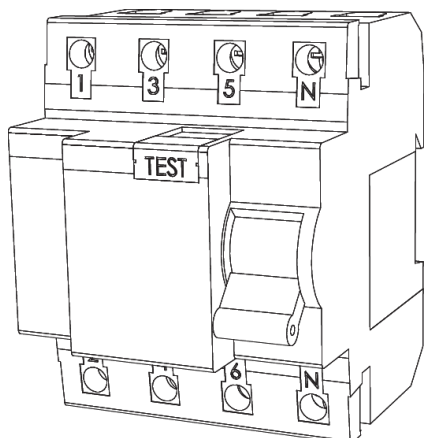
**BE CAREFUL NOT TO CONTAMINATE THE ELECTRICAL PARTS UNDERNEATH THE TOP COVER**

Open the front lid and remove the top cover.

Attach the cabinet to a stable wall by using three (3) screws in the displayed holes of the cabinet back plate.

Mount the top cover back.

10



Type B		✓
Type B+		✓
Type AC		✗
Type A		✗
Type F		✗



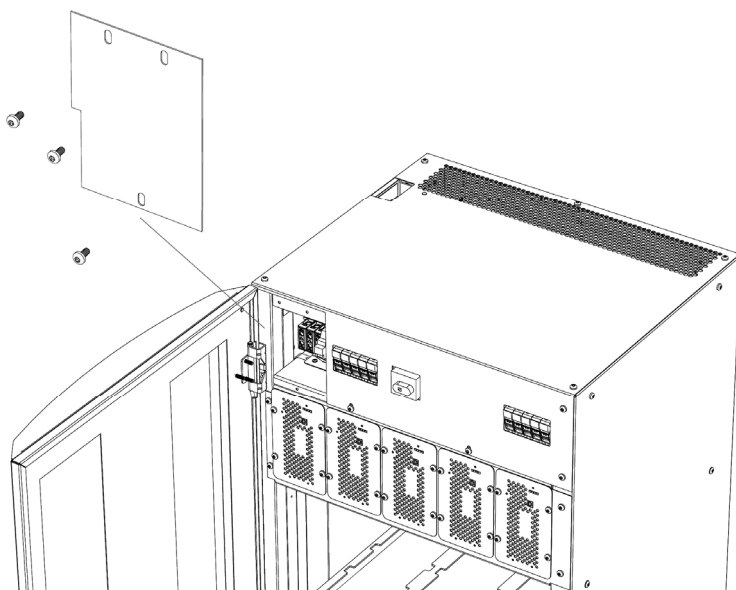
ONLY AUTHORIZED  
ELECTRICIANS ARE AL-  
LOWED TO CARRY OUT THE  
INSTALLATION.



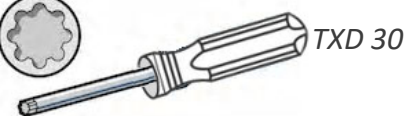
REGARDING EXAMPLES OF  
RCD-INSTALLATIONS,  
PLEASE SEE MAIN MANUAL

Always install a type B or B+ Residual Current Device (RCD), not supplied by Nilar. If an RCD of another classification (type AC, A or F) is already installed, it needs to be replaced with a type B or B+ RCD.

11

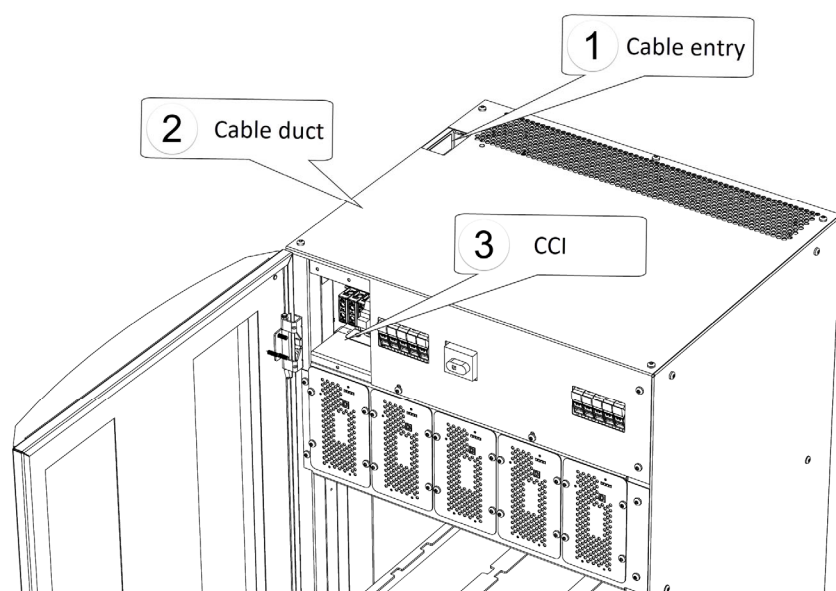


Remove the Customer Connec-  
tion Interface (CCI) cover.



x 3

12



EMPLOY STRAIN RELIEF FOR  
ALL EXTERNAL CABLES

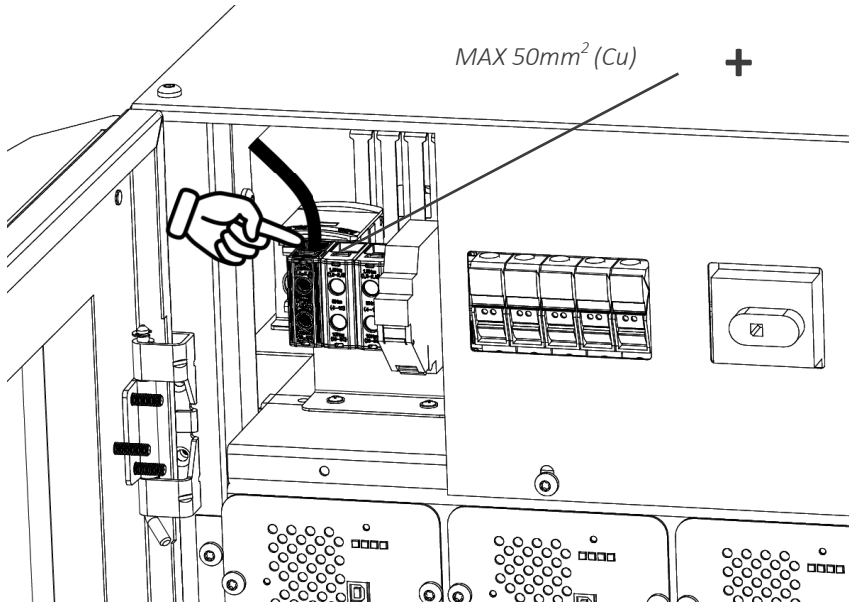


CONDUCTOR CROSS-SECTION  
MAX 50mm<sup>2</sup>

The external cables enter the cabinet's top plate through the dedicated cable entry (①). The cables are then routed along the cable duct (②) underneath the top plate in the direction towards the CCI (③).

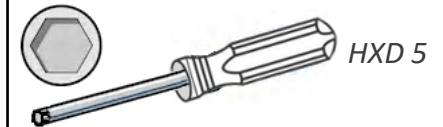


13

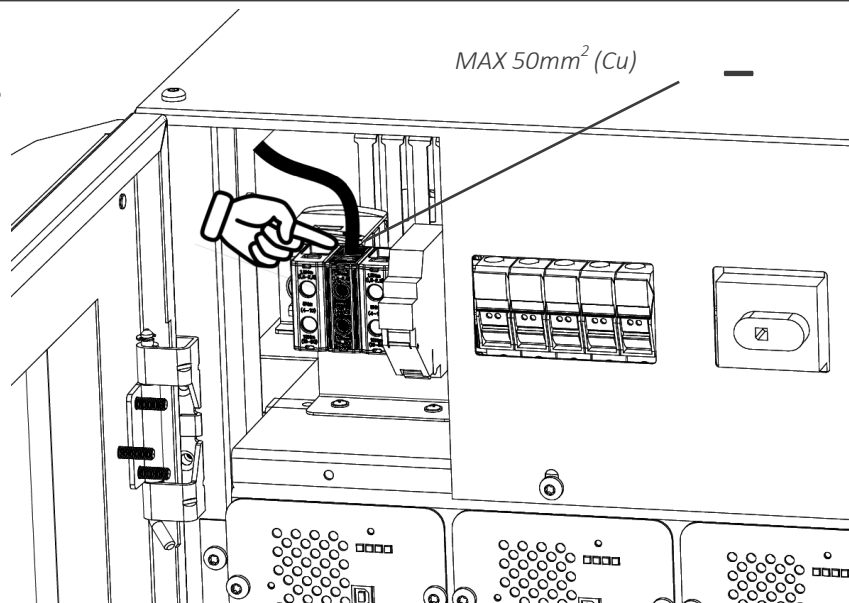


THE POSITIVE (+) WIRE OF THE INCOMING POWER CABLES MUST ALWAYS BE PROTECTED BY APPROPRIATELY SIZED FUSES ACCORDING TO THE LABEL OF THE CABINET

**Connect the incoming positive (+) power cable to the positive (+) terminal.**

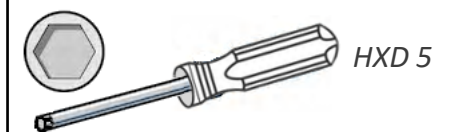


14

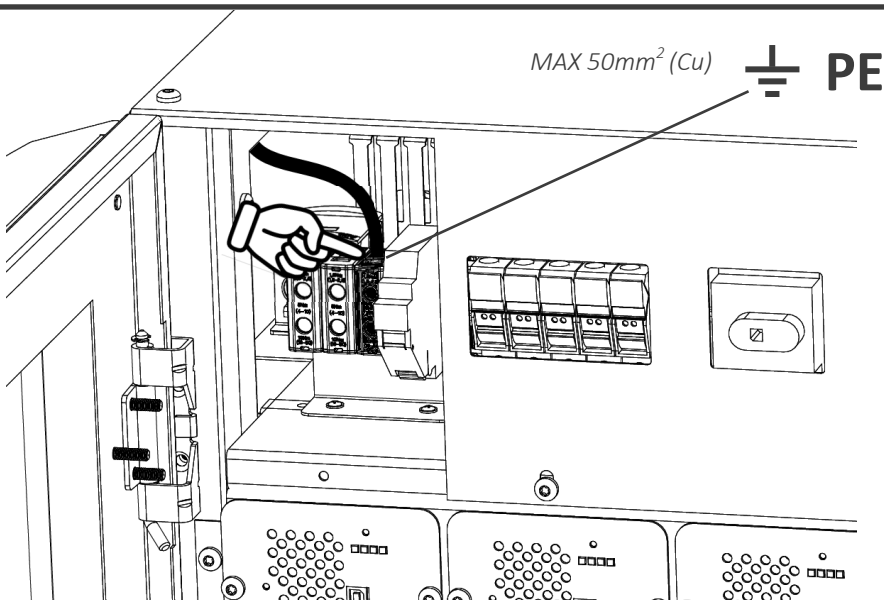


THE NEGATIVE (-) WIRE OF THE INCOMING POWER CABLES MUST ALWAYS BE PROTECTED BY APPROPRIATELY SIZED FUSES ACCORDING TO THE LABEL OF THE CABINET

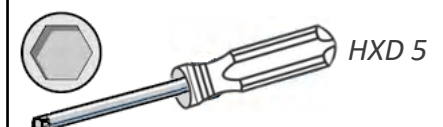
**Connect the incoming negative (-) power cable to the negative (-) terminal.**



15

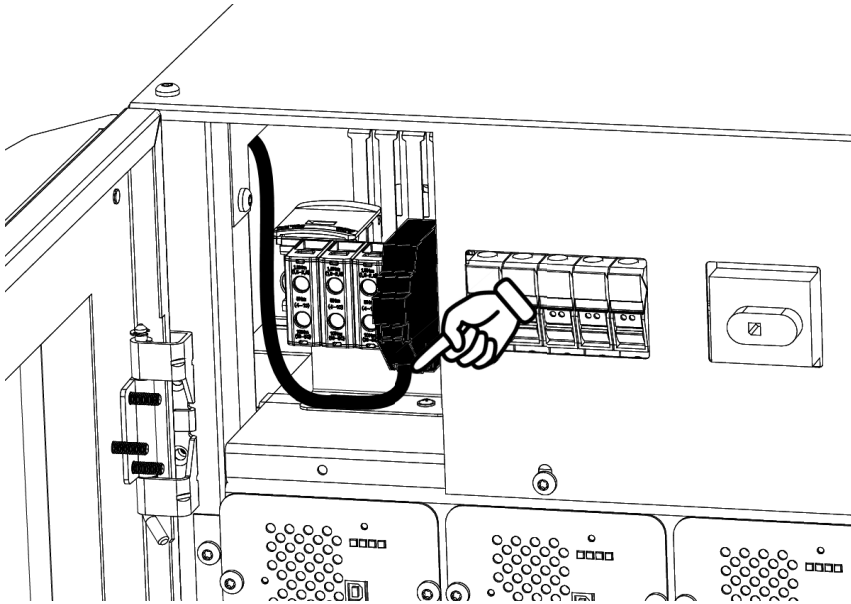


**Connect the incoming protective earth (PE) cable to the protective earth (PE) terminal.**



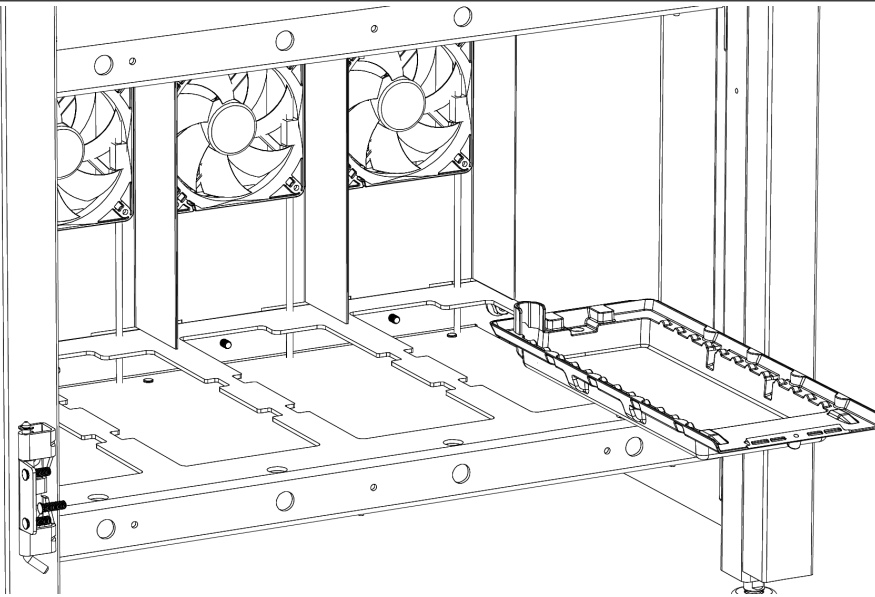


16



Connect the internet communication cable (RJ45) to the dedicated RJ45 connector.

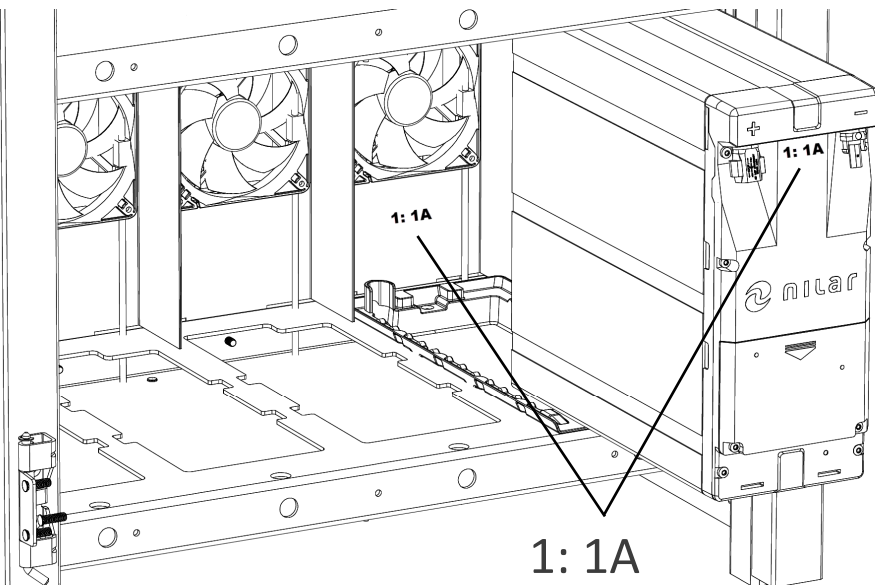
17



NEVER INSTALL BATTERY PACKS WITHOUT INSULATION TRAYS

Place the insulation trays into the shelf openings.

18



REMOVE BOTH LIFTING STRAPS FROM THE BATTERY PACKS

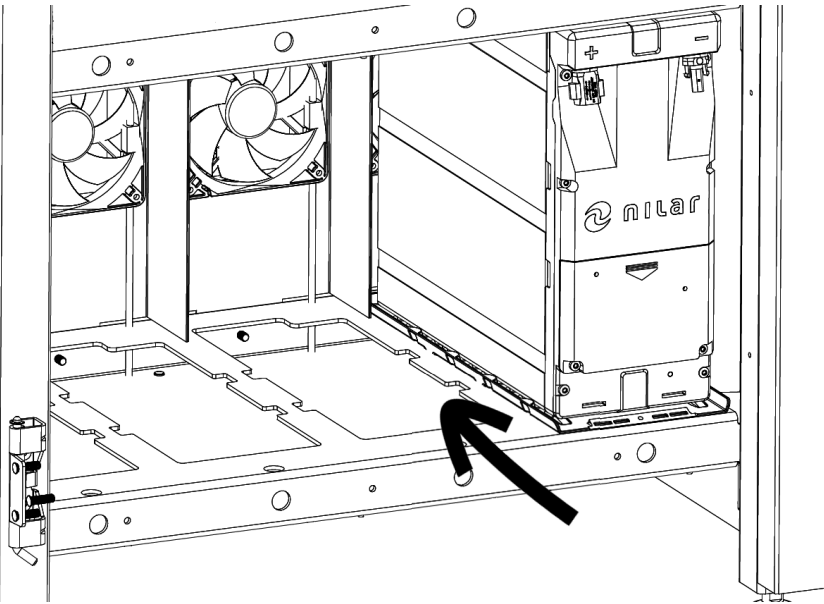


ID-MARKING BELOW THE FAN OF THE CABINET MUST MATCH ID-MARKING ON BATTERY PACK



IT IS RECOMMENDED USING LIFTING AIDS AND SAFETY SHOES WITH STEEL TOE

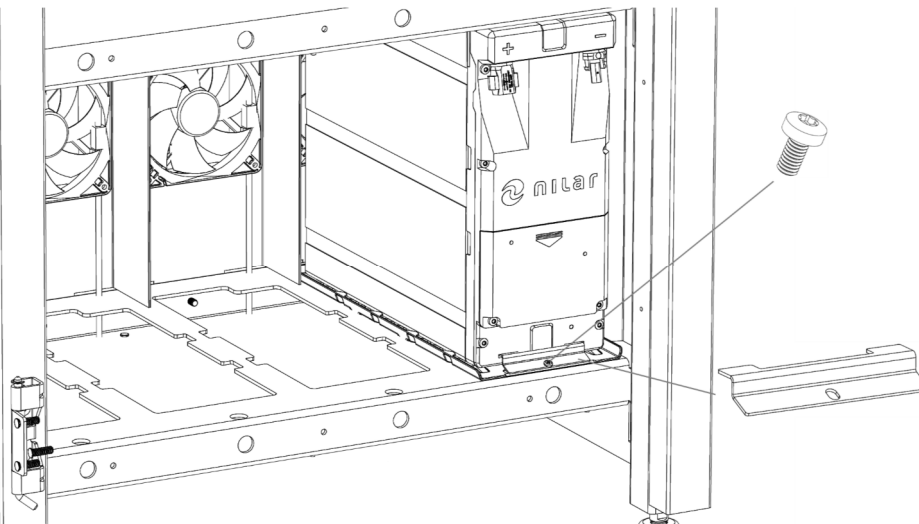
19



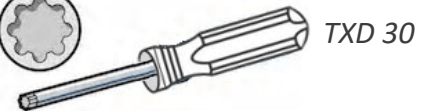
Lift and slide the battery pack into its insulation tray of the dedicated shelf slot.

Repeat for all battery packs.

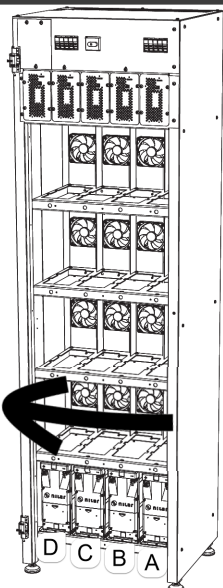
20



Fix the battery front holders with the dedicated screws until firmly tightened (maximum 1,8 Nm)

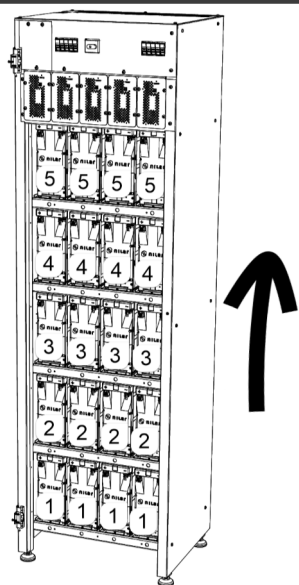


21



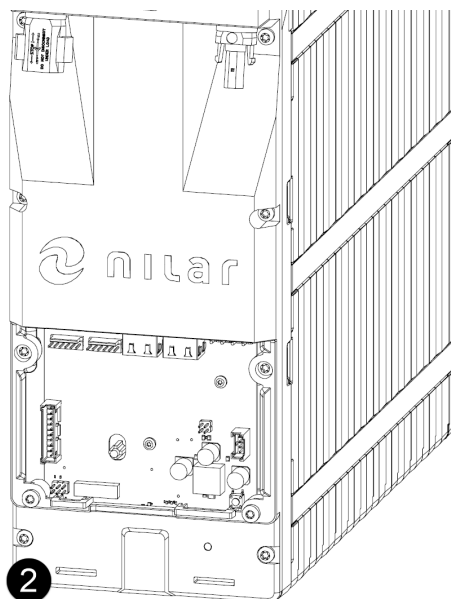
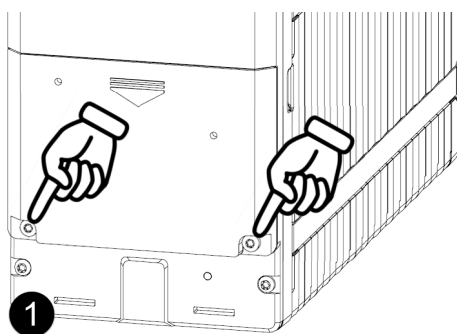
THE 4 BATTERY PACKS PER BATTERY STRING ARE ARRANGED HORIZONTALLY FROM RIGHT TO LEFT

22

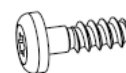


THE BATTERY STRINGS ARE  
ARRANGED VERTICALLY  
FROM THE BOTTOM TO THE  
TOP

23

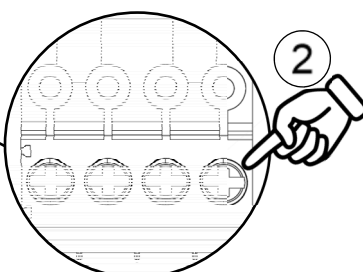
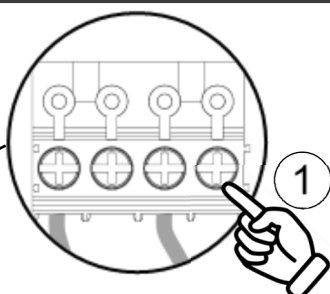
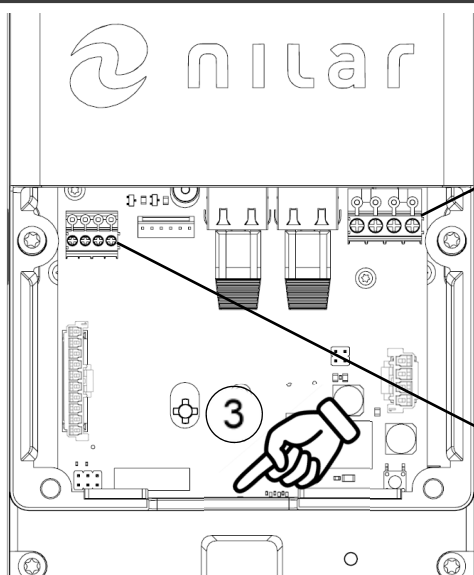


TXD 20



x 2

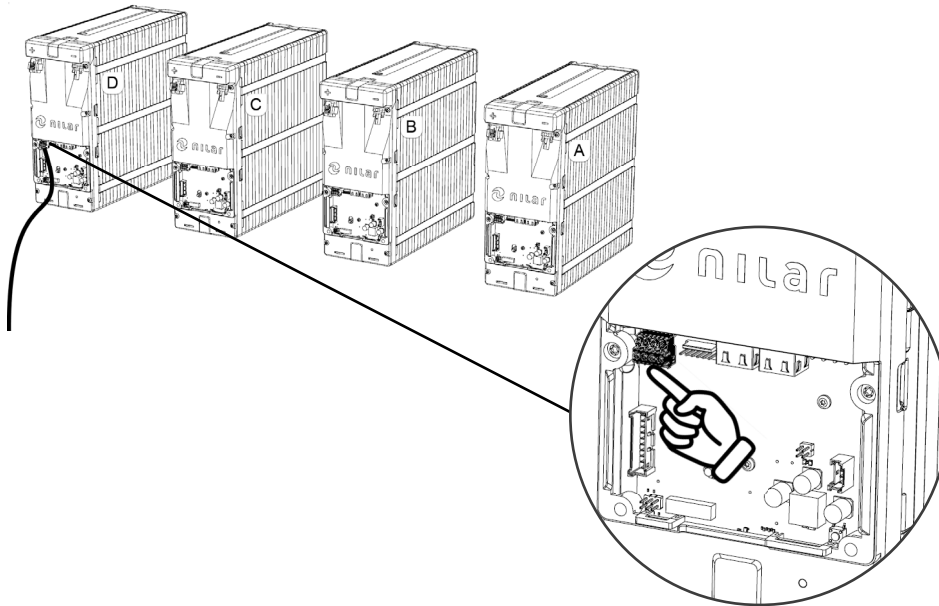
24



BE CAREFUL TO CONNECT  
THE IMU CONNECTORS WITH  
THE CORRECT ORIENTATION

Make sure that the clamping  
screws/springs for the 24VDC  
power supply ① and for the  
Current sensor ② are visible on  
the front side of the connectors  
and that the cables are pointing  
towards the cable entry ③.

25



ONLY APPLICABLE FOR THE  
LAST BATTERY PACK OF  
EVERY BATTERY STRING

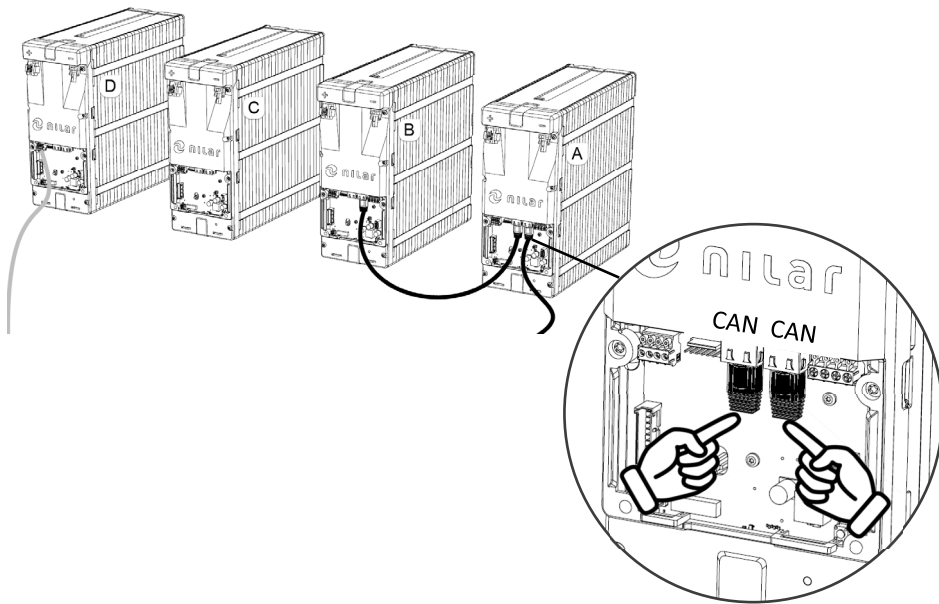


OBSERVE THE CORRECT  
ORIENTATION OF THE  
CONNECTOR

→ INSTALLATION STEP 24

**Connect all the current sensor  
cables.**

26

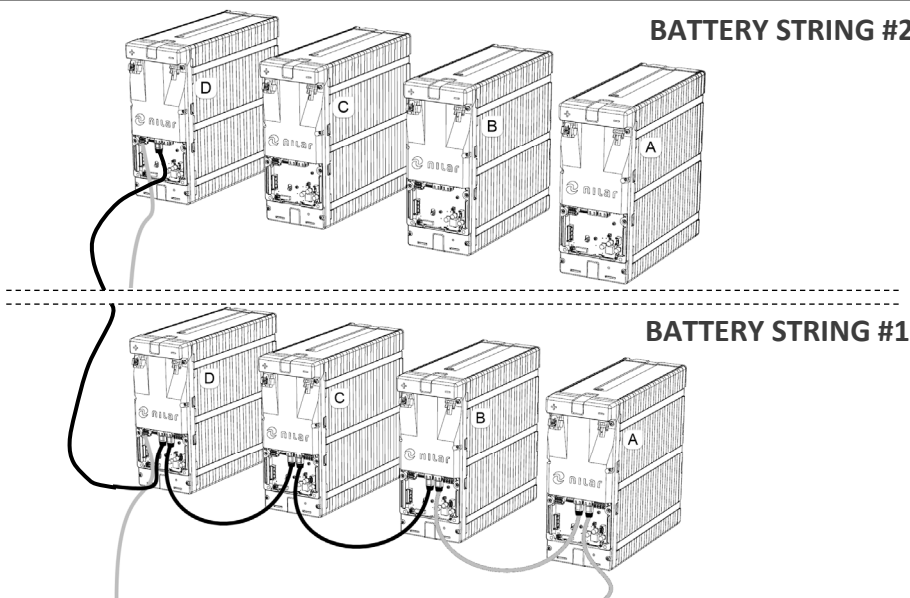


ALL PRE-ROUTED CABLES ARE  
LOCATED IN CABLE DUCT

**Connect the incoming pre-  
routed communication cable to  
battery pack 'A' (RJ45).**

**Connect the interpack  
communication cable between  
battery pack 'A' and 'B' (RJ45).**

27



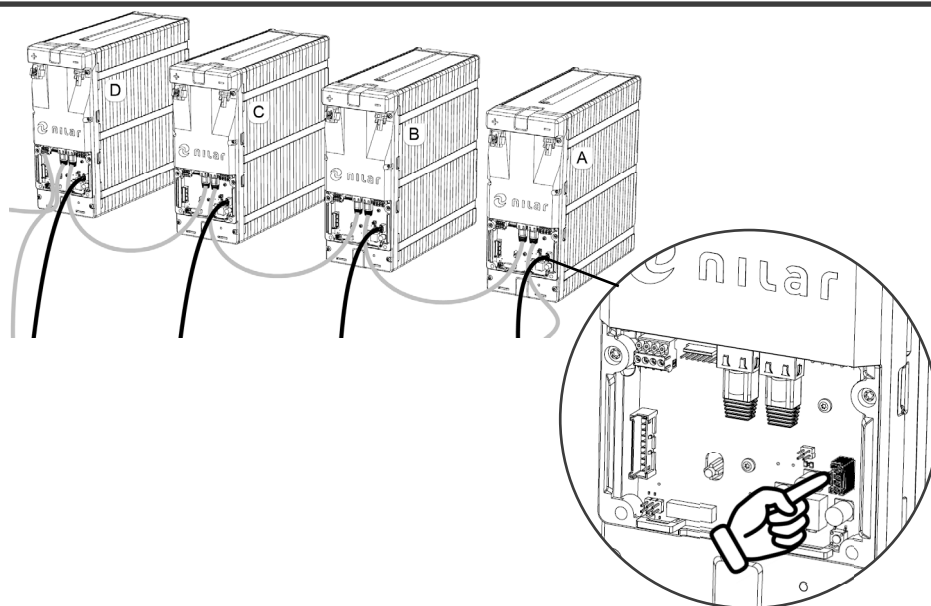
**Connect the remaining interpack  
communication cables (RJ45).**

**Connect the interstring  
communication cable (RJ45)  
from the last connected battery  
pack to the closest battery pack  
of the next battery string.  
Repeat procedure for all battery  
packs and battery strings.**

**Connect the last connected  
battery pack of the last battery  
string to the pre-routed  
outgoing communication cable.**



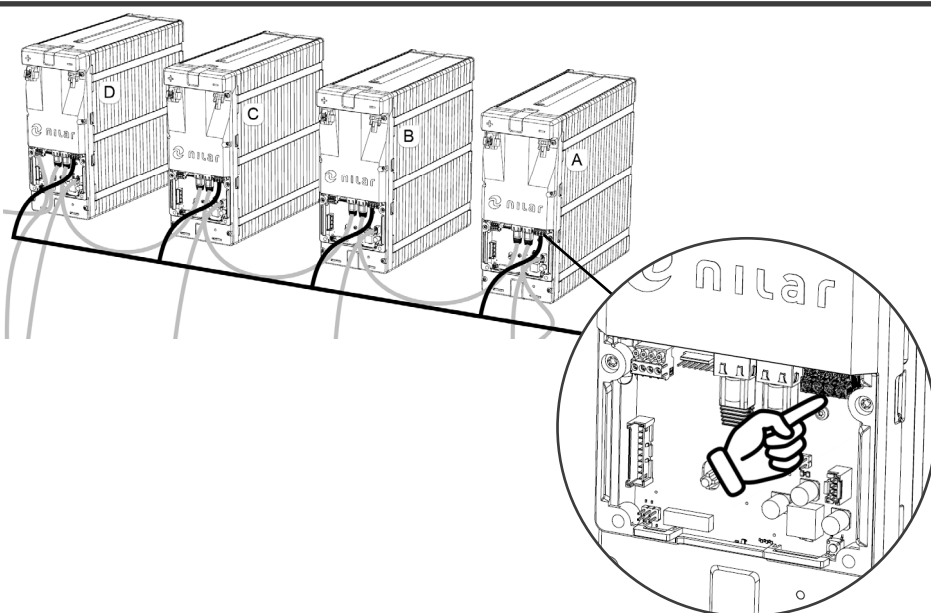
28



ALL PRE-ROUTED CABLES ARE  
LOCATED IN THE CABLE DUCT

**Connect all the pre-routed fan  
cables to all battery packs.**

29



ALL PRE-ROUTED CABLES ARE  
LOCATED IN THE CABLE DUCT

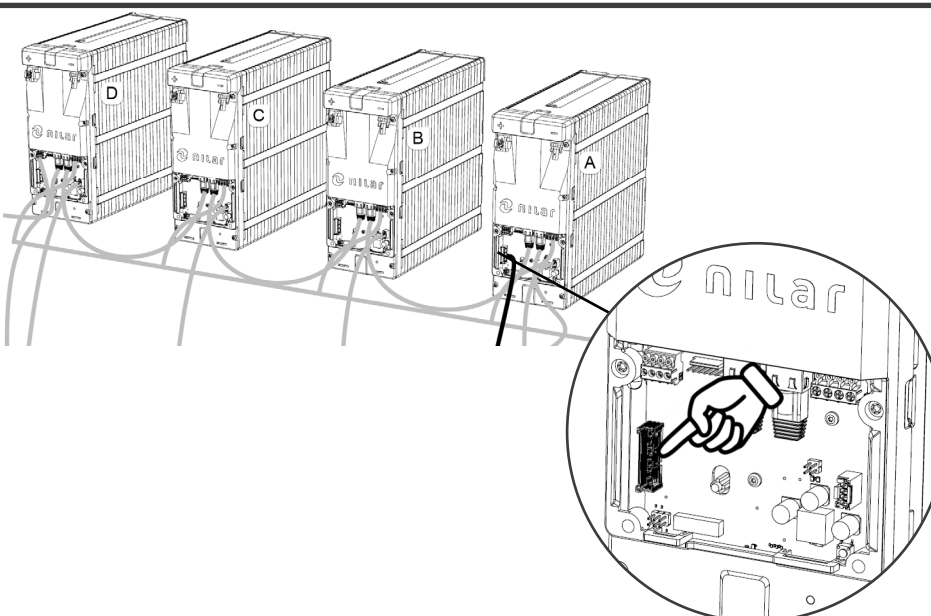


OBSERVE THE CORRECT  
ORIENTATION OF THE  
CONNECTOR

→ INSTALLATION STEP 24

**Connect all the pre-routed  
24VDC power supply cables to  
all battery packs.**

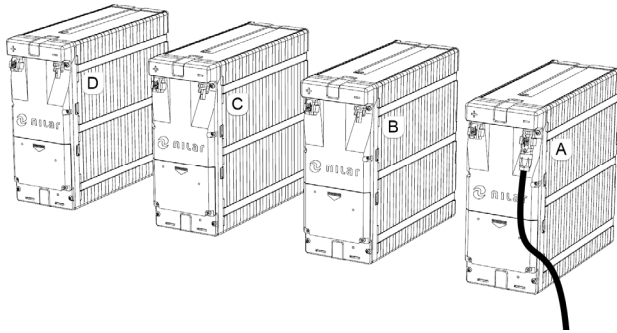
30



ONLY APPLICABLE FOR THE  
FIRST BATTERY PACK ('A') OF  
THE FIRST BATTERY STRING

**Connect the ambient tempera-  
ture sensor to the first battery  
pack of the first battery string,  
marked 1: 1A.**

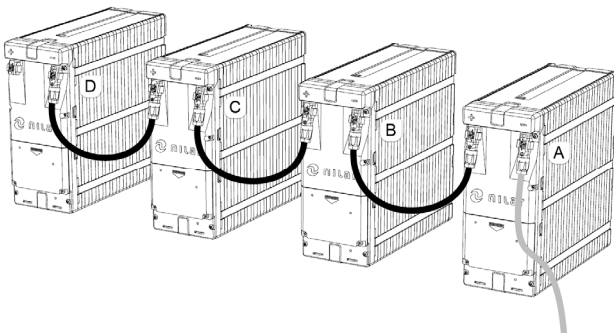
31



Install the cover lids back on all the battery packs while checking that all cables are routed through the cable entry.

Connect the negative (-) power cables for all battery strings.

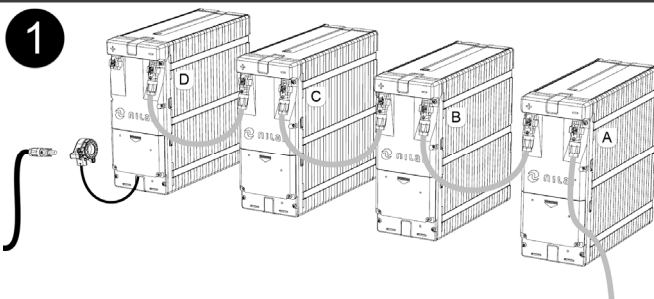
32



Connect the interpack power cables for all battery strings.

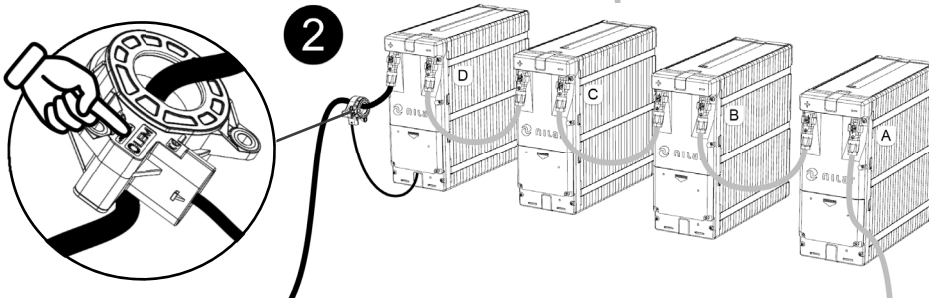
33

1



**!** THE TEXT MARKING "LEM" OF THE CURRENT SENSOR MUST POINT TOWARDS THE POSITIVE (+) CHASSIS CONNECTOR OF THE LAST BATTERY PACK

2

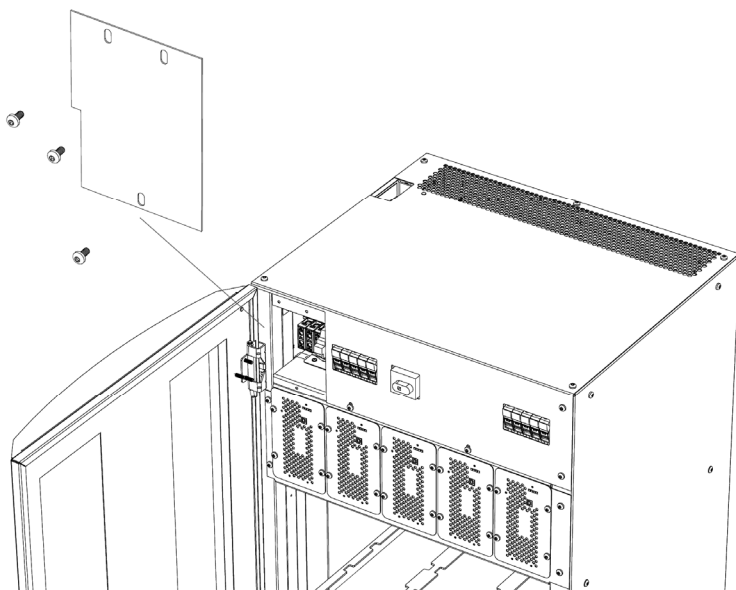


Lace the positive (+) power cable through the current sensor and connect it to the last battery pack.

Repeat for all battery strings.



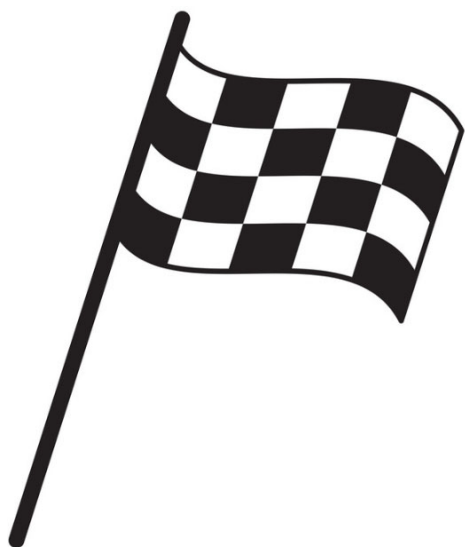
34



Refit the CCI cover. Close the front lid and secure it with the supplied screw.

35

***CONGRATULATIONS! THE INSTALLATION IS NOW COMPLETE, FOR COMMISSIONING PLEASE CONTACT YOUR RETAILER.***



---

**Nilar AB**  
Stockholmsvägen 116 B, 6tr  
SE-187 30 Täby, Sweden