# STP110-60 Core-2 Inverter Commissioning checklist

## Information on this Document

### 1.1 Validity

This document is valid for:

- STP 110-60 (Sunny Tripower CORE2)

### 1.2 Target Group

The tasks described in this document must only be performed by qualified persons. Qualified persons must have the following skills:

- Knowledge of how an inverter works and is operated
- Training in how to deal with the dangers and risks associated with installing, repairing and using electrical devices and installations
- Training in the installation and commissioning of electrical devices and installations
- Knowledge of all applicable laws, standards and directives
- Knowledge of and compliance with this document and all safety information

### 1.3 Safety

Strictly follow safety instructions illustrated in Operating manual of STP110-60 Inverter, there will damage to personal or properties due to improper handling or compromised in safety.

### 1.4 Content and Structure of this Document

- This document contains graphical instructions on installing and commissioning. Observe all information and carry out the actions illustrated graphically in this document in the specified order.
- The latest version of this document and the comprehensive manual for installation, commissioning, configuration and decommissioning are to be found in PDF format and as eManual at www.SMASolar.com.
- You can also call up the eManual via the user interface of the product.
- Illustrations in this document are reduced to the essential information and may deviate from the real product.

### 1.5 Major Steps Involved:-

- Ensure scope of supply.
- Ensure Proper Spacing and Mounting as per guidelines.
- Ensure Proper grounding to Inverter.
- AC connections:-
  Ensure cross section and type of cables.
  Ensure stripping of sheath and insulations.
  Ensure type of Terminals and Crimping.
  Ensure proper sequence of washer, Nuts and Bolts,
  Ensure proper torquing at connection point and closing of cable glands.
- DC Connections:-
  Ensure that the maximum input voltage of the inverter is not more than 1100V DC.
  Ensure there is no ground fault in the PV array.
  Check whether the DC connectors have the correct polarity.
  Sunclix connectors been correctly assembled.
- Ensure Safe connection and Disconnection of Inverter.
- Software Update of Inverters and Data manager is mandatory . Do not configured Inverters with data manager M without updating firmware of Both inverters and EDMM.
  Information related to update is available on SMA website and accessible by scanning QR code from Inverter packing Box

## Before Unpacking

Firmware Update is mandatory for all STP110-60 devices and Data Manager M at time of first·

For a hassle-free commissioning of systems consisting of one or multiple Sunny Tripower CORE2 inverters and optionally SMA Data Manager M it is absolutely necessary to follow the necessary steps in the shown order:

- Update Firmware of Sunny Tripower CORE2 inverter to version >=1.00.04.R
- Update Firmware of SMA Data Manager M to version >=1.09.06.R
- Registering Sunny Tripower CORE2 in SMA Data Manager M

Information regarding Update procedure is available at SMA knowledge base and can be accessible by scanning Code from packaging or link: https://www.sma.de/en/core2/releases


### Registering STP110-60 CORE2 Inverter in SMA Data Manager M( only after firmware update)

The Sunny Tripower CORE2 is controlled and monitored via Modbus Sunspec by the Data Manager.

One or multiple inverters can be registered as Modbus devices in the commissioning dialog. In step „Modbus registration" please use the profile „Sunspec Modbus" and Unit ID „1". In the following step the country code can be selected for all connected devices.

In case of an already commissioned Sunny Data Manager M the Sunny Tripower CORE2 can also be added easily:

Registering a New Modbus Device and Assigning a Modbus Profile

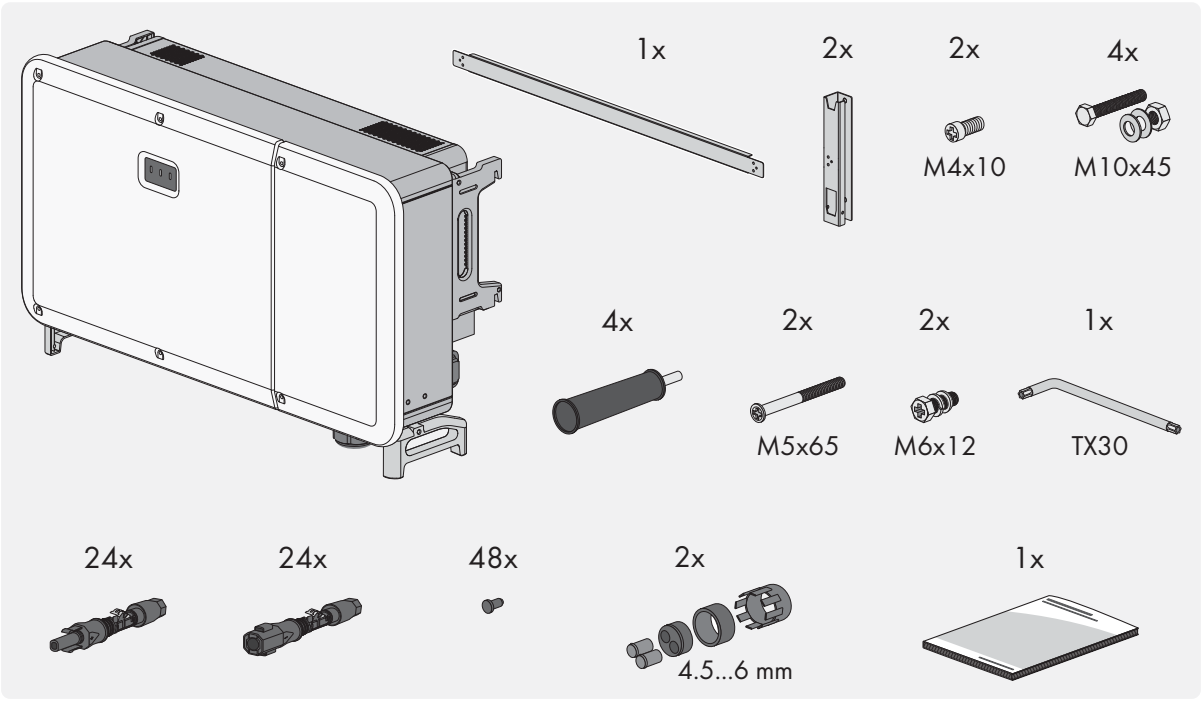
Log into the user interface of the Data Manager.

- Select the menu item Device administration in the menu Configuration.
- Select the button.
- Select Modbus devices and confirm with [Next].
- Fill out the input fields and confirm with [Next].
- Select Modbus profile „SunSpec".
- Keep Unit ID to „1".
- Available Modbus devices in the system are searched for and displayed.
- Select the Modbus devices to be added to the system and select [Save]

# Instructions

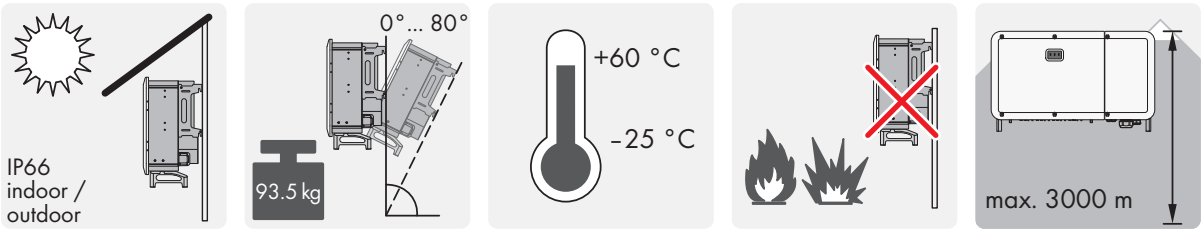
## Scope of Delivery

Ensure all material against standard scope of supply been received, in case short ship , please inform to SMA Service immediatly.

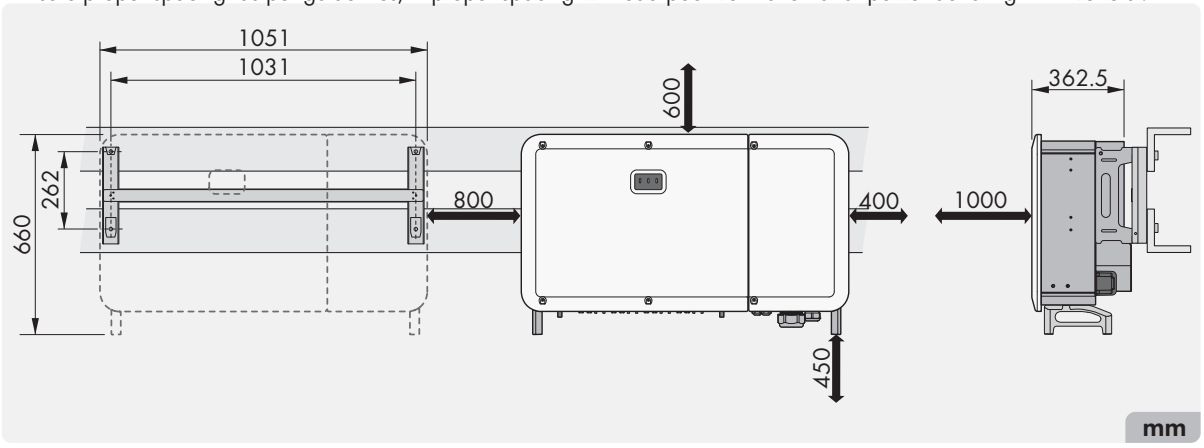


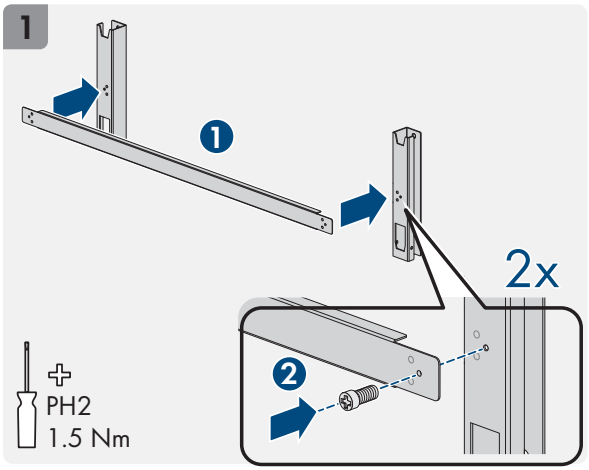

## Mounting location

Ensure proper mounting location, Avoid mounting in direct sunlight, Near to fire and altitude above 3000 meters.

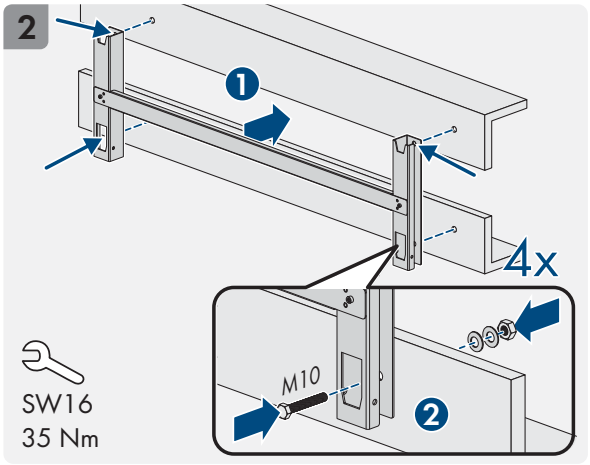



Ensure proper spacing as per guidelines, improper spacing will lead poor ventilation and power de-rating in inverters .

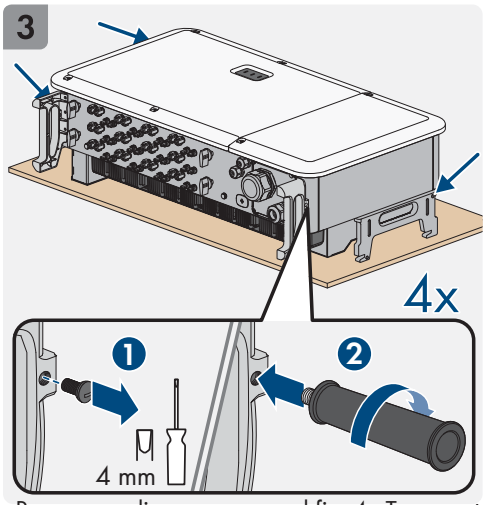




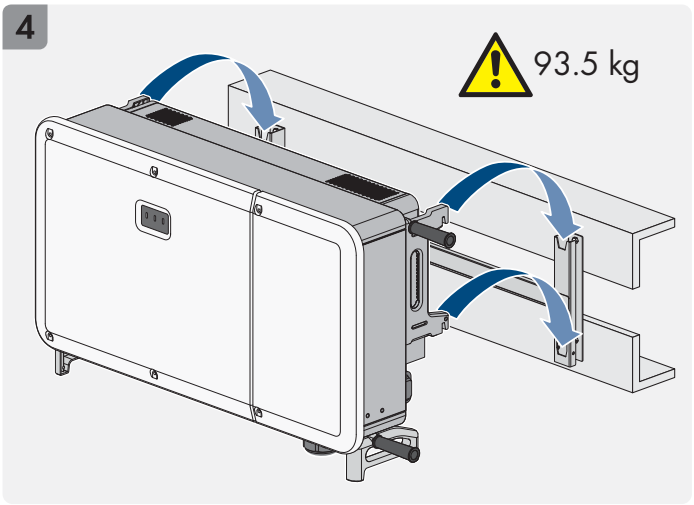

Screw the Bracket parts to the ends of connecting Rod



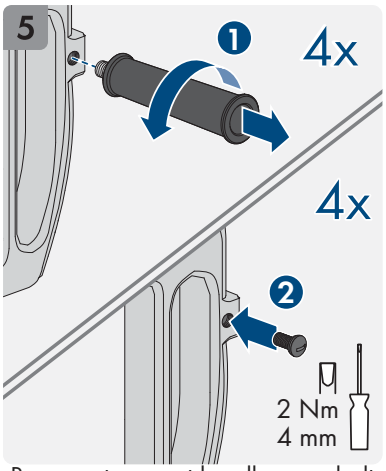

Attach the mounting barcket to the profile rails using four hex screws , ensure proper sequence of washer , spring washer and HexNut.



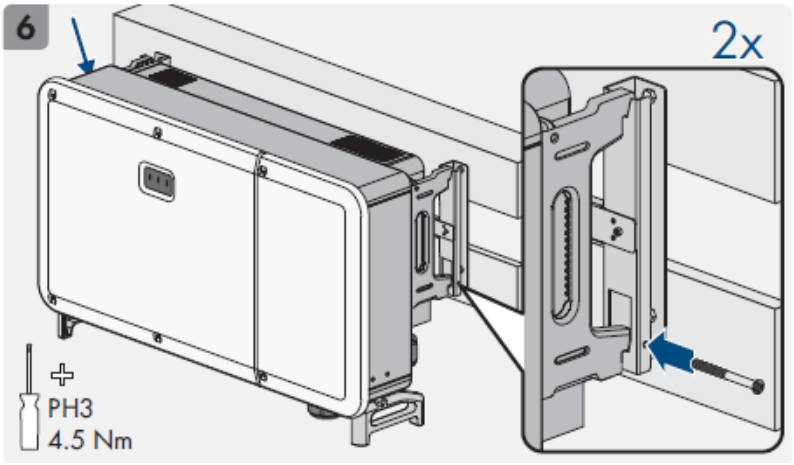

Remove sealing screws and fix 4x Transport Handles. In case of using Hoist, fix Eye bolts into Upper tapped hole on right and Left




Hook the Inverter into the Mounting bracket




Remove transport handles eye bolts of the hoist and and again screw in the sealing screws



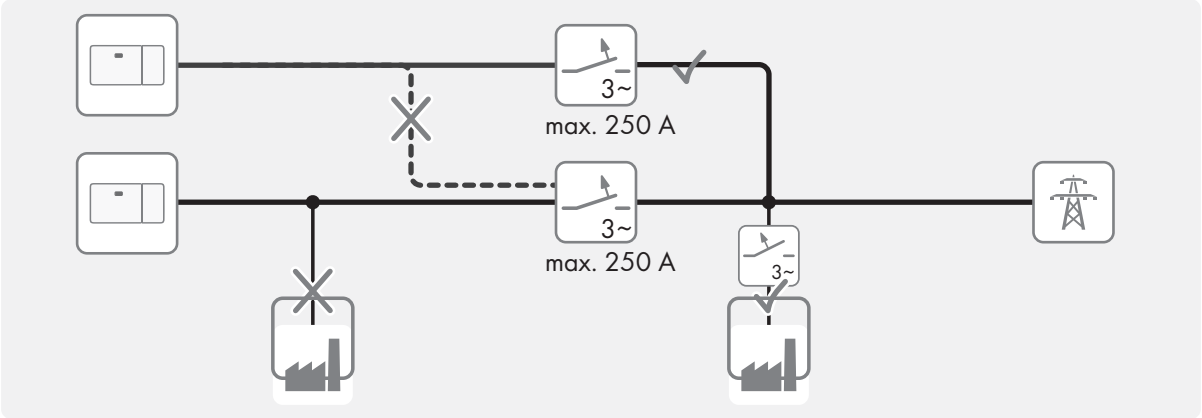

Use the pan head screws (M5x65) to attach the inverter to the mounting bracket (PH3, torque:4.5 Nm).

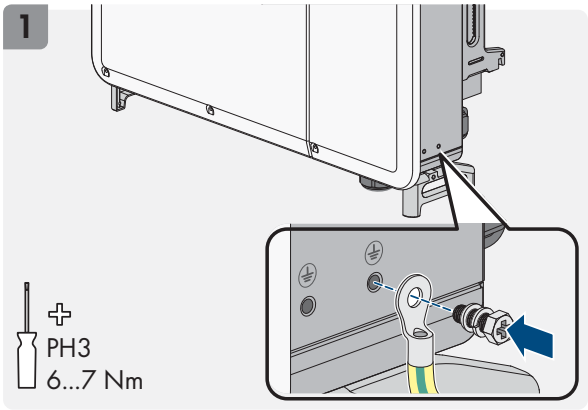
## AC Connection

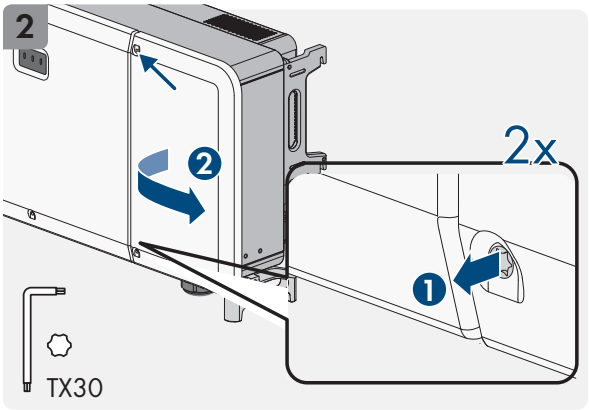
AC cable requirements as follows:

☐ Conductor type: aluminum and copper wire
☐ External diameter: 36 mm to 56 mm
☐ Conductor cross-section: 70 mm² to 240 mm²
☐ Conductor cross-section of grounding conductor: 35 mm² to 240 mm²
☐ Insulation stripping length: 30 mm
☐ Sheath stripping length: ≤ 375 mm
☐ The cable must be dimensioned in accordance with the local and national directives

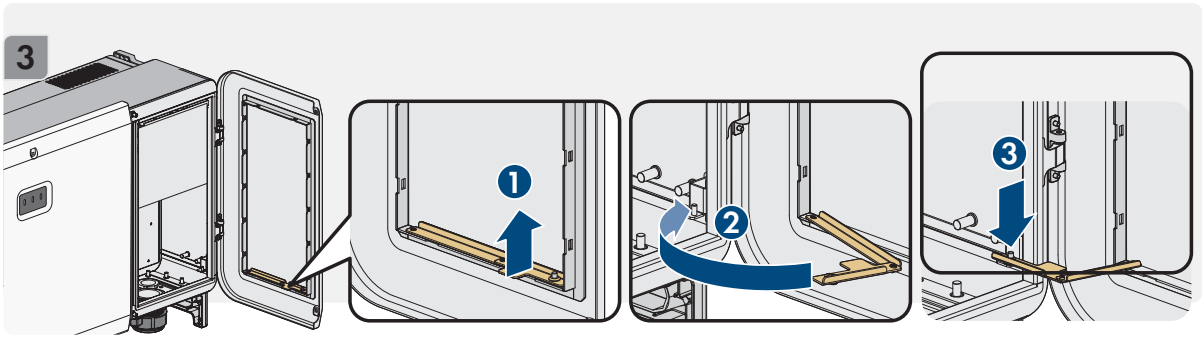
- Do not connect Inverter output directly to load or grid without circuit breaker.
- Never combine inverters output in circuit breaker connected individually to inverter.
- Use Circuit breaker of max. 250A




An additional grounding of the inverter is required to protect from touch current in case the grounding conductor fails at the terminal of the AC cable, The required M6x12 screw with spring washer and washer is included in the scope of delivery of the inverter




The cable compartment cover will secure and remains open with of Limiting Lever.

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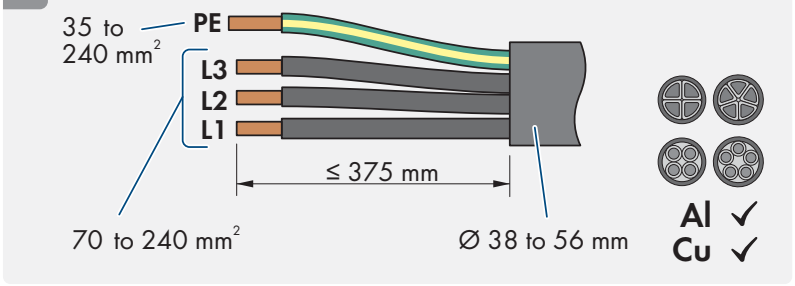
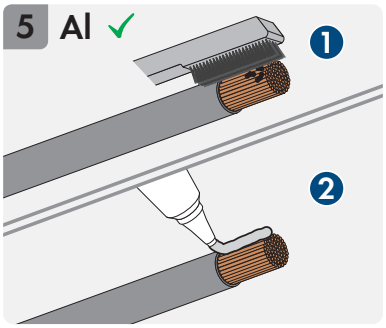



Ensure proper cross section and striping of sheath and conductor insualtion

5 Al ✓




For conductors made of aluminum, remove the oxide film and apply protective grease to the conductors.

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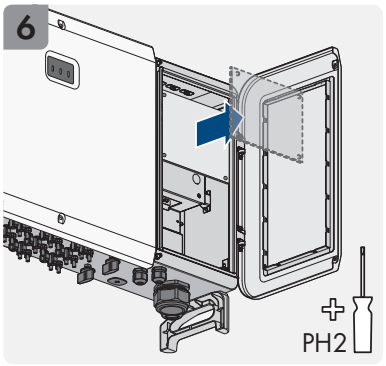


Remove the protective cover from ac terminals

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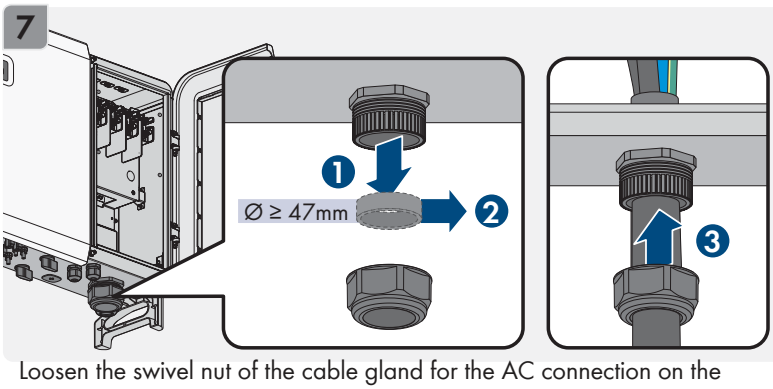


Loosen the swivel nut of the cable gland for the AC connection on the bottom of the inverter. Lead the cable through the swivel nut and the cable gland into the device.

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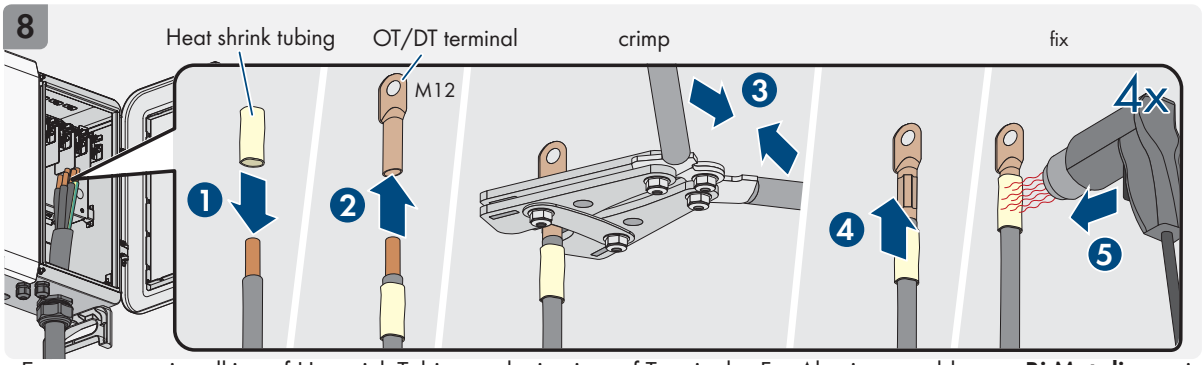


Ensure proper installtion of Heat sink Tubing and crimping of Terminals, For Aluminum cables use **Bi-Metalic** terminals.

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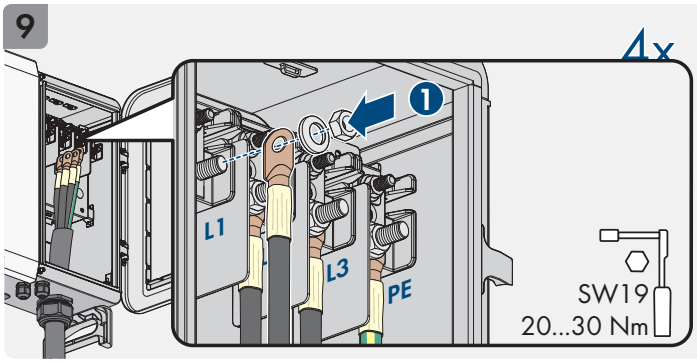


Ensure Proper sequence of washers and bolts. Apply proper torques.

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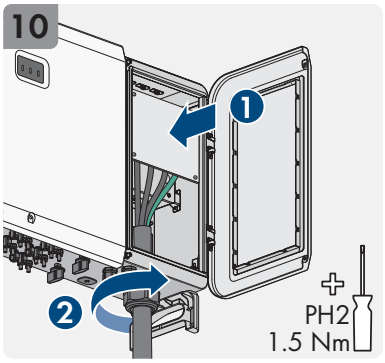


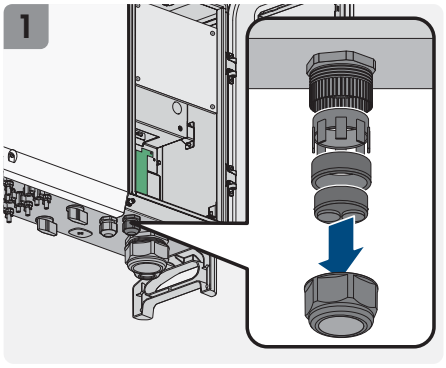

Attach protective cover and tighten glands, make sure there is no tension on cable.

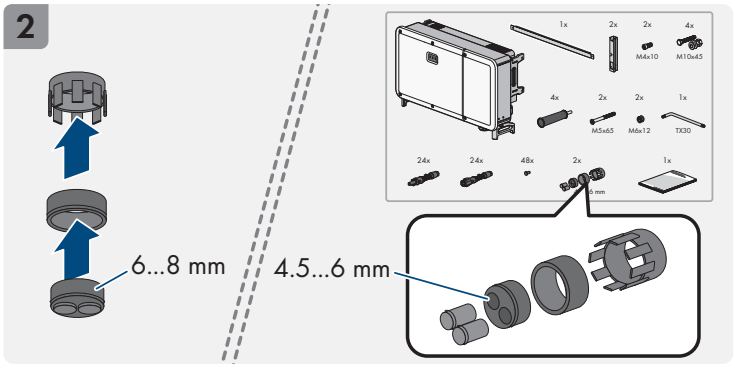
## Connecting the network

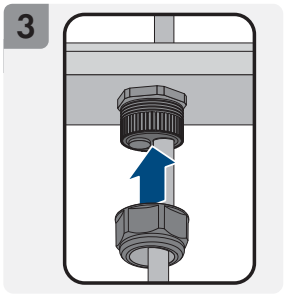
**Network cable requirements:**

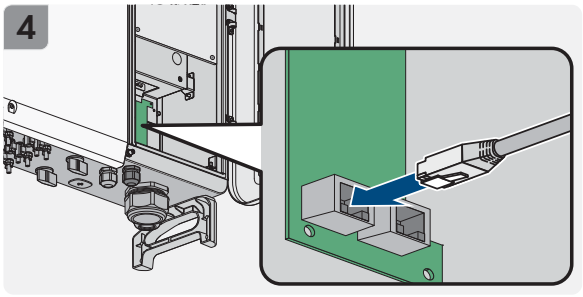
The cable length and quality affect the quality of the signal. Observe the following cable requirements:

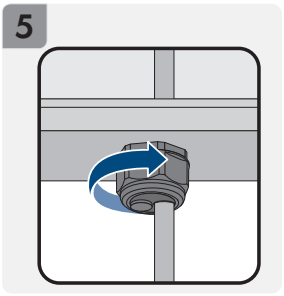
- ☐ Cable type: 100BaseTx
- ☐ Cable category: minimum CAT5e
- ☐ Plug type: RJ45 of Cat5, Cat5e or higher
- ☐ Shielding: SF/UTP, S/UTP, SF/FTP or S/FTP
- ☐ Number of insulated conductor pairs and insulated conductor cross-section: at least 2 x 2 x 0.22 mm²
- ☐ Maximum cable length between two nodes when using patch cables: 50 m
- ☐ Maximum cable length between two nodes when using installation cables: 100 m
- ☐ UV-resistant for outdoor use.



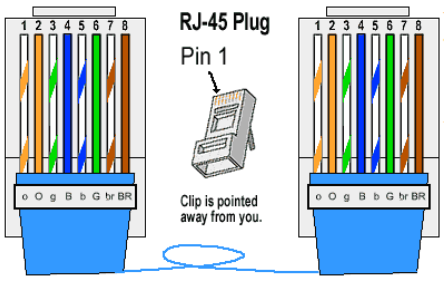



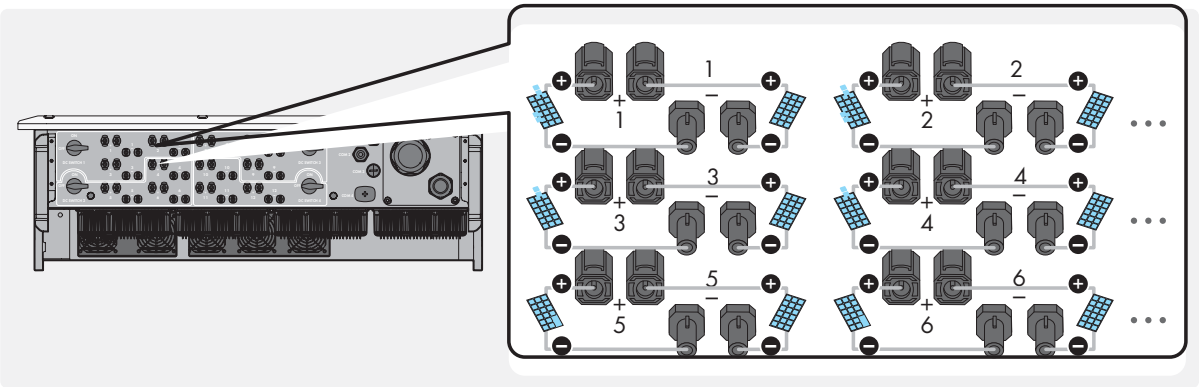



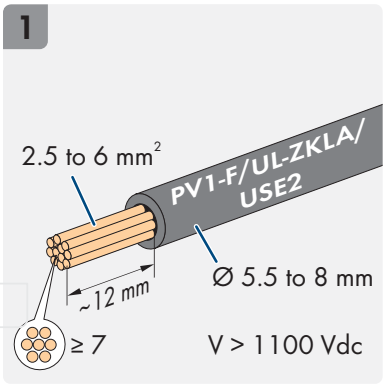

- ➢ Ensure proper specification of communication cable.
- ➢ Use Straight configuration
- ➢ Never lay communication cable along with Power cables, this will lead issue in communication and in worst case damage hardware due high inference.
- ➢ Ensure that the network cable does not form any loops in the device and is no longer than necessary
- ➢ Put back sleeve on spare opening in case only one cable connected.



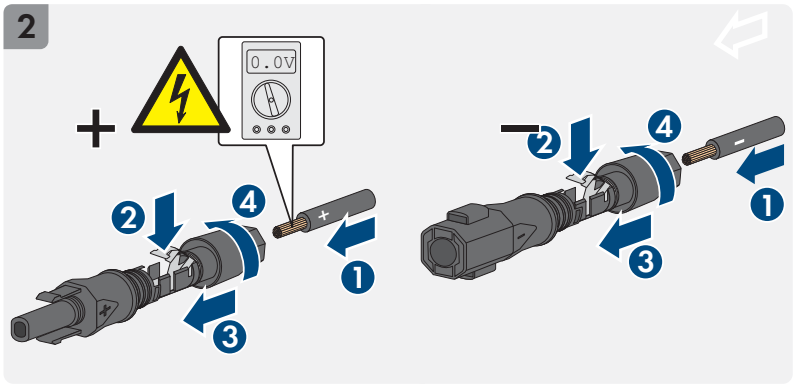
## DC Connection

- Ensure that the maximum input voltage of the inverter is adhered to
- there is no ground fault in the PV array.
- Check whether the DC connectors have the correct polarity.

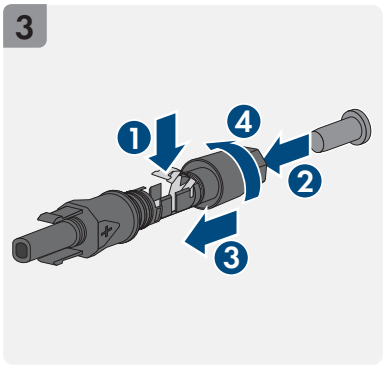


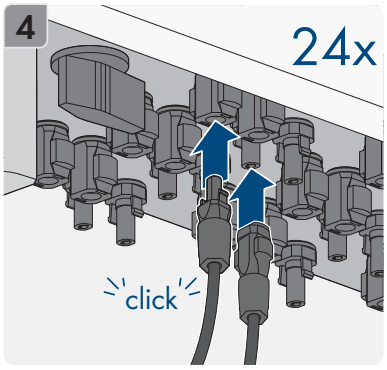



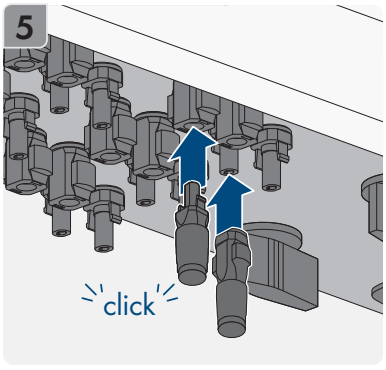

Strip 12 mm of the cable insulation.




Insert the stripped cable into the DC connector up to the stop. When doing so,ensure that the stripped cable and the DC connector are of the same polarity




For unused DC connectors, Use Sealing plugs . Make sure that assembled DC connector are connected properly to inputs.

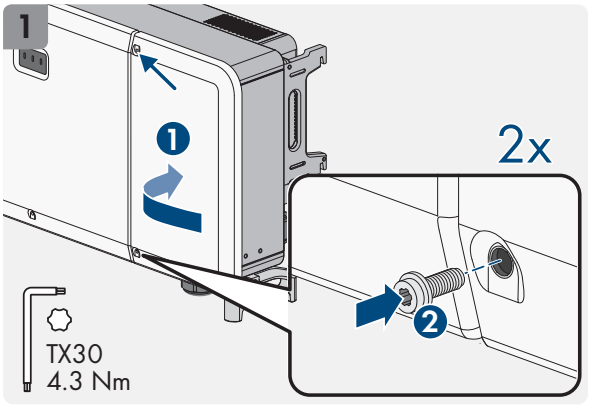
Requirements:

☐ The AC circuit breaker must be correctly rated and mounted.

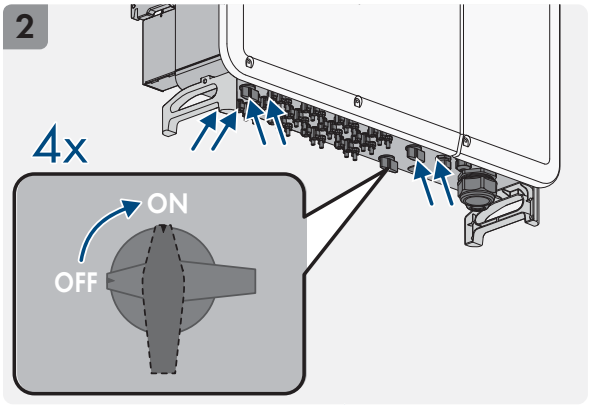
☐ The product must be correctly mounted.

☐ All cables must be correctly connected.

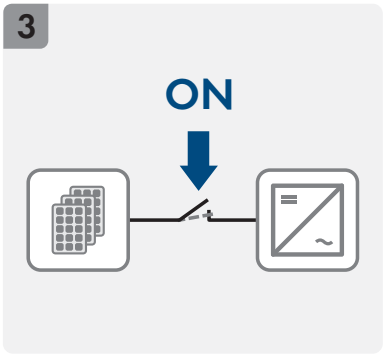
☐ Unused enclosure openings must be sealed tightly with sealing plugs.

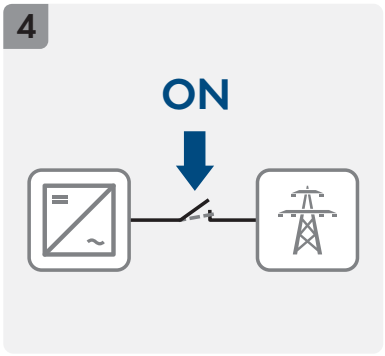


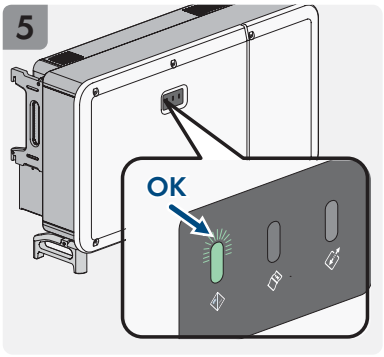

1. If the cable compartment is still open, close the cable compartment and tighten the screws on the cable compartment cove




2. Switch on all 4 DC load-break switches.



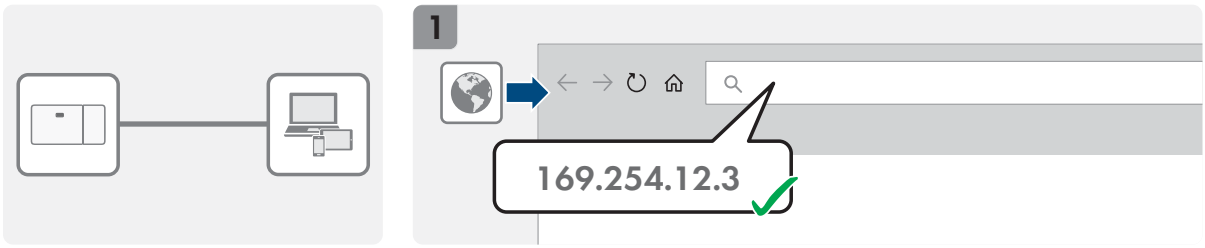



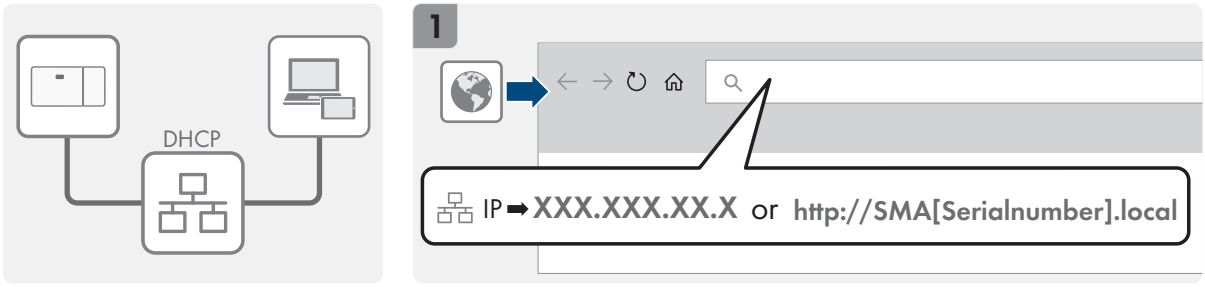



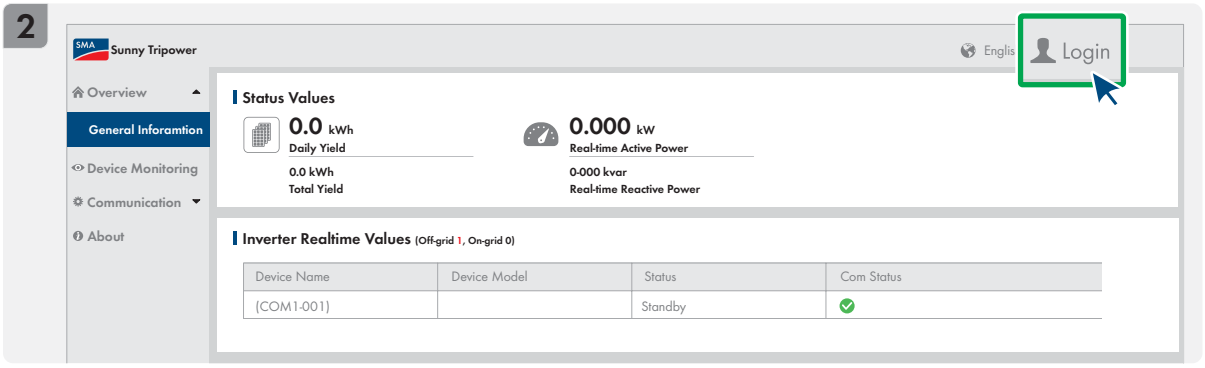

3. Switch on the AC circuit breaker.
☑ Green LED is flashing. The inverter is waiting for the input conditions.
☑ After approx. 90 seconds, the green LED is permanently on. The inverter is feeding in.
4. If the green LED is still flashing after 90 seconds, the conditions for activating feed-in operation are not yet met. As soon as the conditions for feed-in operation are met, the inverter starts with the feed-in operation and the green LED will light up continuously.
5. If the red LED lights up, an event has occurred. Use the event number to find out which event has occurred and, if necessary, initiate countermeasures.
6. Ensure that the inverter feeds in correctly.

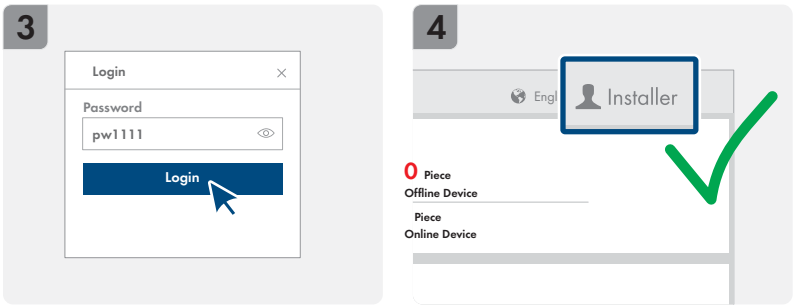
## Accessing the user interface via LAN

Standard inverter IP address for the direct connection via Ethernet: 169.254.12.3.
If the product is connected to a local network (e.g. via a router), the product will receive a new IP address. Access address for Apple, Android, Windows and Linux systems: SMA[serialnumber].local (e.g. SMAA2102031234.local)

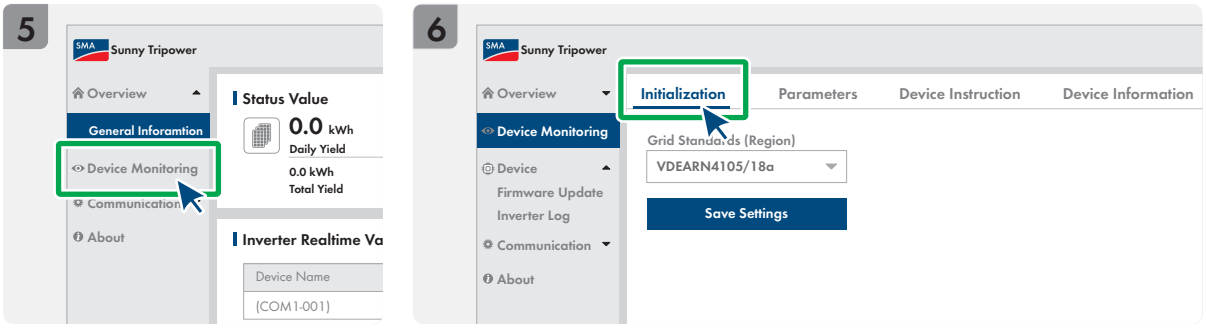


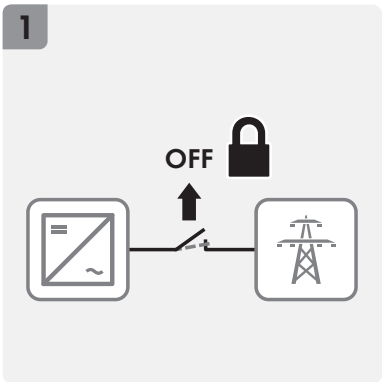



Change Country Standard as per local grid requirement.






Disconnect the AC circuit breaker and secure it against reconnection.
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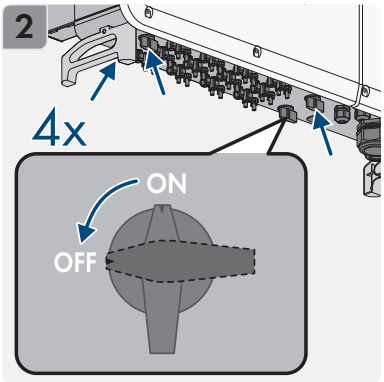
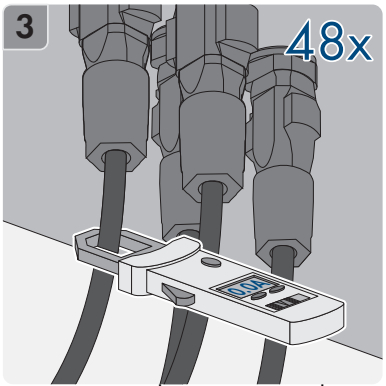
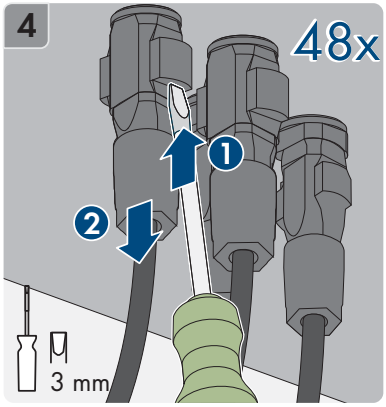


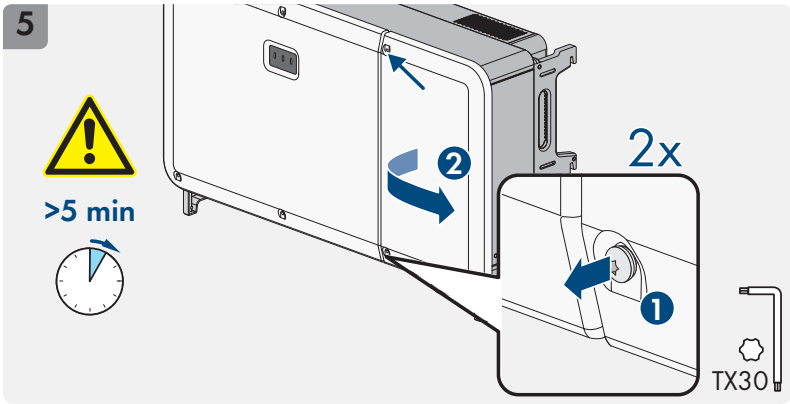

Switch off all four DC load-break switches and secure against reconnection



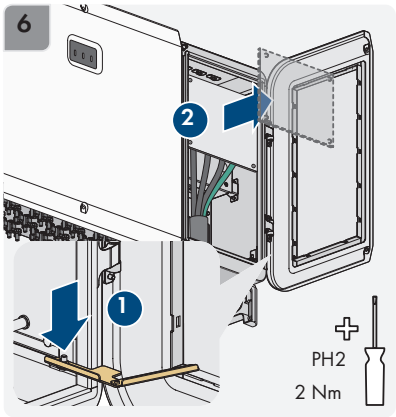

Use a current clamp to ensure that no current is present in the DC cables



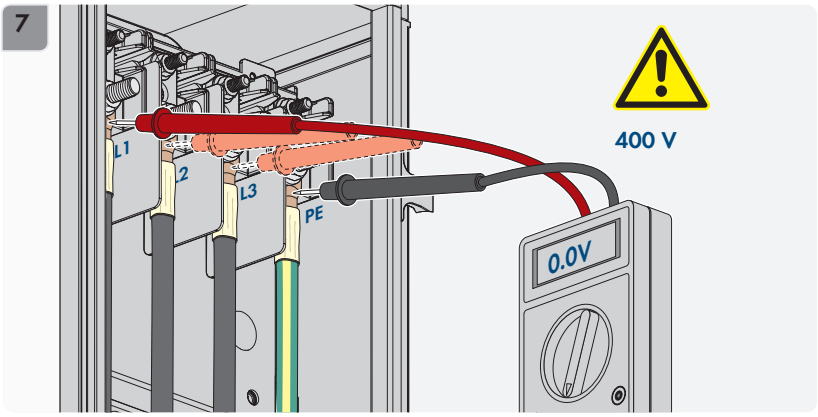

Release and remove the DC connectors. To do so, insert a flat-blade screwdriver or an angled screwdriver (blade width: 3.5 mm) into one of the  side slots and pull the DC connectors out




Open the cable compartment




Loosen the four screws of the protective cover infront of the AC connection and remove the protective cover




Verify a de-energized state of the AC connection between L1 and PE, L2 and PE and L3 and PE using a suitable measuring device. For this purpose, hold the test probe to the conductors' ring terminal lugs.