



## SMA Backup for STP Hybrid X

BU-STPH-3P63B / BU-STPH-4P63B / BU-STPH-3P63K / BU-STPH-4P63K

eManual



# Table of Contents

|          |                                                                          |           |
|----------|--------------------------------------------------------------------------|-----------|
| <b>1</b> | <b>Information on this Document.....</b>                                 | <b>5</b>  |
| 1.1      | Validity.....                                                            | 5         |
| 1.2      | Target Group .....                                                       | 5         |
| 1.3      | Content and Structure of this Document.....                              | 5         |
| 1.4      | Levels of Warning Messages.....                                          | 5         |
| 1.5      | Symbols in the Document.....                                             | 6         |
| 1.6      | Typographies in the document.....                                        | 6         |
| 1.7      | Designations in the Document.....                                        | 6         |
| 1.8      | Additional Information.....                                              | 6         |
| <b>2</b> | <b>Safety .....</b>                                                      | <b>7</b>  |
| 2.1      | Intended Use.....                                                        | 7         |
| 2.2      | IMPORTANT SAFETY INFORMATION .....                                       | 8         |
| <b>3</b> | <b>Scope of Delivery.....</b>                                            | <b>10</b> |
| <b>4</b> | <b>Product overview .....</b>                                            | <b>12</b> |
| 4.1      | Information about the automatic backup system .....                      | 12        |
| 4.1.1    | Purpose of an Automatic Backup System .....                              | 12        |
| 4.1.2    | Operating principle of the SMA Backup.....                               | 12        |
| 4.2      | System Overview .....                                                    | 13        |
| <b>5</b> | <b>Backup Box mounting and connection .....</b>                          | <b>14</b> |
| 5.1      | Circuitry Overview .....                                                 | 14        |
| 5.2      | Product Description.....                                                 | 16        |
| 5.3      | Mounting.....                                                            | 16        |
| 5.3.1    | Requirements for the Mounting Location .....                             | 16        |
| 5.3.2    | Dimensions for mounting.....                                             | 17        |
| 5.3.3    | Optional: Prepare the enclosure .....                                    | 17        |
| 5.3.4    | Wall Mounting .....                                                      | 17        |
| 5.3.5    | Optional: Remove lid .....                                               | 19        |
| 5.3.6    | Removing the installation cover.....                                     | 20        |
| 5.4      | Electrical Connection.....                                               | 20        |
| 5.4.1    | Requirements for the electrical connection .....                         | 20        |
| 5.4.1.1  | SPS IN signal cable requirements.....                                    | 20        |
| 5.4.1.2  | Requirements on the SPS OUT AC cable for connection to the inverter..... | 21        |
| 5.4.1.3  | Requirements on the AC cables for the BACKUP and GRID connections.....   | 21        |
| 5.4.2    | Enclosure opening.....                                                   | 22        |
| 5.4.3    | Overview of the Connection Area .....                                    | 22        |
| 5.4.4    | Connecting the Cables to the Automatic Transfer Switching Device.....    | 23        |
| 5.4.4.1  | Connecting the cables to BU-STPH-3P63B .....                             | 23        |
| 5.4.4.2  | Connecting the cables to BU-STPH-4P63B .....                             | 25        |
| <b>6</b> | <b>Backup Kit mounting and connection .....</b>                          | <b>28</b> |
| 6.1      | Circuitry Overview .....                                                 | 28        |
| 6.2      | Requirements for the Mounting Location.....                              | 30        |
| 6.3      | Dimensions for mounting .....                                            | 31        |
| 6.4      | Electrical Connection.....                                               | 31        |
| 6.4.1    | Requirements for the electrical connection .....                         | 31        |
| 6.4.1.1  | SPS IN signal cable requirements.....                                    | 31        |
| 6.4.1.2  | Requirements on the SPS OUT AC cable for connection to the inverter..... | 32        |
| 6.4.1.3  | Requirements on the AC cables for the BACKUP and GRID connections.....   | 32        |

|           |                                                                            |           |
|-----------|----------------------------------------------------------------------------|-----------|
| 6.4.2     | Overview of the Connection Area .....                                      | 33        |
| 6.4.3     | Connecting the Cables to the Automatic Transfer Switching Device .....     | 35        |
| 6.4.3.1   | Connecting the cables to BU-STPH-3P63K .....                               | 35        |
| 6.4.3.2   | Connecting the cables to BU-STPH-4P63K .....                               | 36        |
| <b>7</b>  | <b>Placing a notice about backup operation on the meter cabinet.....</b>   | <b>38</b> |
| <b>8</b>  | <b>Connection Area of the Inverter .....</b>                               | <b>39</b> |
| <b>9</b>  | <b>Operation .....</b>                                                     | <b>40</b> |
| 9.1       | Setting Parameters for Automatic Backup Operation Using SMA 360° App ..... | 40        |
| 9.2       | Setting Parameters via the Inverter User Interface .....                   | 41        |
| 9.2.1     | Changing parameters .....                                                  | 41        |
| 9.2.2     | Setting parameters for automatic backup operation .....                    | 42        |
| 9.3       | Testing automatic backup operation .....                                   | 43        |
| <b>10</b> | <b>Troubleshooting .....</b>                                               | <b>44</b> |
| <b>11</b> | <b>Decommissioning the Product.....</b>                                    | <b>45</b> |
| <b>12</b> | <b>Disposal .....</b>                                                      | <b>46</b> |
| <b>13</b> | <b>Technical Data .....</b>                                                | <b>47</b> |
| 13.1      | BU-STPH-xP63K general data.....                                            | 47        |
| 13.2      | BU-STPH-xP63B general data.....                                            | 47        |
| 13.3      | Parallel grid operation.....                                               | 47        |
| 13.4      | Automatic backup.....                                                      | 48        |
| 13.5      | Switchover times (adjustable parameters) .....                             | 48        |
| <b>14</b> | <b>EU Declaration of Conformity .....</b>                                  | <b>49</b> |
| <b>15</b> | <b>Contact .....</b>                                                       | <b>50</b> |

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# 1 Information on this Document

## 1.1 Validity

This document is valid for:

- BU-STPH-3P63B (SMA Backup for STP Hybrid X (3P,63A,Box))
- BU-STPH-4P63B (SMA Backup for STP Hybrid X (4P,63A,Box))
- BU-STPH-3P63K (SMA Backup for STP Hybrid X (3P,63A,Kit))
- BU-STPH-4P63K (SMA Backup for STP Hybrid X (4P,63A,Kit))

## 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 to safely disconnect SMA inverters
- Knowledge of how an inverter works and is operated
- Knowledge of how batteries work and are operated
- Training to deal with risks associated with installing, repairing, and using electrical devices, inverters, and batteries
- Training in the installation and commissioning of electrical devices and installations
- Knowledge of all applicable laws, regulations, standards, and directives
- Knowledge of and compliance with this document and all safety information
- Knowledge of and compliance with the documents of the battery manufacturer with all safety information

## 1.3 Content and Structure of this Document

This document describes the installation, commissioning and decommissioning of the product.

You will find the latest version of this document and further information on the product in PDF format at [www.SMA-Solar.com](http://www.SMA-Solar.com).

Illustrations in this document are reduced to the essential information and may deviate from the real product.

## 1.4 Levels of Warning Messages

The following levels of warning messages may occur when handling the product.

### DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### NOTICE

Indicates a situation which, if not avoided, can result in property damage.

## 1.5 Symbols in the Document

| Symbol                                                                            | Explanation                                                                            |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|  | Information that is important for a specific topic or goal, but is not safety-relevant |
|  | Indicates a requirement for meeting a specific goal                                    |
|  | Required result                                                                        |
|  | Example                                                                                |

## 1.6 Typographies in the document

| Typography        | Use                                                                                                                                                                                            | Example                                                                                                                                                                                       |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>bold</b>       | <ul style="list-style-type: none"> <li>• Messages</li> <li>• Terminals</li> <li>• Elements on a user interface</li> <li>• Elements to be selected</li> <li>• Elements to be entered</li> </ul> | <ul style="list-style-type: none"> <li>• Connect the insulated conductors to the terminals <b>X703:1</b> to <b>X703:6</b>.</li> <li>• Enter <b>10</b> in the field <b>Minutes</b>.</li> </ul> |
| >                 | <ul style="list-style-type: none"> <li>• Connects several elements to be selected</li> </ul>                                                                                                   | <ul style="list-style-type: none"> <li>• Go to Settings &gt; Date.</li> </ul>                                                                                                                 |
| [Button]<br>[Key] | <ul style="list-style-type: none"> <li>• Button or key to be selected or pressed</li> </ul>                                                                                                    | <ul style="list-style-type: none"> <li>• Select <b>[Enter]</b>.</li> </ul>                                                                                                                    |
| #                 | <ul style="list-style-type: none"> <li>• Placeholder for variable components (e.g., parameter names)</li> </ul>                                                                                | <ul style="list-style-type: none"> <li>• Parameter <b>WCtlHz.Hz#</b></li> </ul>                                                                                                               |

## 1.7 Designations in the Document

| Complete designation    | Designation in this document                 |
|-------------------------|----------------------------------------------|
| SMA Backup Kit          | Product, automatic transfer switching device |
| SMA Backup Box          | Product, automatic transfer switching device |
| Sunny Tripower Hybrid X | Inverter, hybrid inverter                    |

## 1.8 Additional Information

Additional information is available at [www.SMA-Solar.com](http://www.SMA-Solar.com).

| Title and information content                                                                | Type of information                   |
|----------------------------------------------------------------------------------------------|---------------------------------------|
| Sunny Tripower Hybrid X (STPH5-60 / STPH6-60 / STPH8-60 / STPH10-60 / STPH12-60 / STPH15-60) | <a href="#">Operating manual</a>      |
| Sunny Tripower Hybrid X (STPH20-70 / STPH25-70 / STPH30-70)                                  | <a href="#">Operating manual</a>      |
| List of approved batteries                                                                   | <a href="#">Technical Information</a> |
| "Operation of the user interface of products powered by ennexOS"                             | <a href="#">User Manual</a>           |

## 2 Safety

### 2.1 Intended Use

The product is an automatic transfer switching device for the safe and standard-conforming disconnection from the utility grid and switching to battery-backup operation. Combined with the Sunny Tripower Hybrid X, the product automatically disconnects the connection to the utility grid in the event of a power outage and switches to battery-backup operation so that the hybrid inverter can supply the entire household with power from the battery and the PV system.

When grid power is restored, the product switches from battery-backup operation to parallel grid operation also automatically via the inverter.

The product is available in four versions:

- Products BU-STPH-3P63B and BU-STPH-3P63K only switch the line conductors. The neutral conductor is not switched.
- Products BU-STPH-4P63B and BU-STPH-4P63K provide all-pole disconnection. The neutral conductor is switched in addition to the line conductors.

For the selection of the product version and for the installation, observe the normative specifications as well as the connection conditions of the local grid operator.

The Sunny Tripower Hybrid X, which controls the Backup solution, must be configured as the System Manager and have a battery connected. If there are multiple Sunny Tripower Hybrid X inverters in the system, the inverter with the highest nominal power and the highest connected storage capacity must be selected as the System Manager.

An SMA Energy Meter is required to detect power outages and the restoration of the utility grid.

The product must only be used with the following SMA inverters.

- STPH5-60
- STPH6-60
- STPH8-60
- STPH10-60
- STPH12-60
- STPH15-60
- STPH20-70
- STPH25-70
- STPH30-70

Other inverters within the system can also contribute to the power supply in backup mode and feed into the stand-alone grid provided by the inverter supplying backup power. Compatible products: STPHxx-60 / STPHxx-70 / STP xx-50.

Products BU-STPH-3P63K and BU-STPH-4P63K are intended for installation in a meter cabinet.

The products are intended for installation as a separate accessory.

Products BU-STPH-3P63B and BU-STPH-4P63B must be mounted on a sufficiently load-bearing and closed wall.

Products BU-STPH-3P63B and BU-STPH-4P63B are suitable for indoor and outdoor use.

The products are intended for use in residential and industrial environments.

The product is intended for use in residential and industrial environments.

All components must remain within their permitted operating ranges and their installation requirements at all times.

Use SMA products only in accordance with the information provided in the enclosed documentation and with the locally applicable laws, regulations, standards and directives. Any other application may cause personal injury or property damage.

The documentation must be strictly followed. Deviations from the described actions and the use of materials, tools, and aids other than those specified by SMA Solar Technology AG are expressly forbidden.

Alterations to the SMA products, e.g., changes or modifications, are only permitted with the express written permission of SMA Solar Technology AG. Unauthorized alterations as well as failure to observe the documentation will void guarantee and warranty claims and in most cases terminate the operating license. SMA Solar Technology AG shall not be held liable for any damage caused by such changes.

Any use of the product other than that described in the Intended Use section does not qualify as appropriate.

The documentation supplied is an integral part of SMA products. Keep the documentation in a convenient, dry place for future reference and observe all instructions contained therein.

This document does not replace any regional, state, provincial, federal or national laws, regulations or standards that apply to the installation, electrical safety and use of the product. SMA Solar Technology AG assumes no responsibility for the compliance or non-compliance with such laws or codes in connection with the installation of the product.

## 2.2 IMPORTANT SAFETY INFORMATION

Keep the manual for future reference.

This section contains safety information that must be observed at all times when working.

The product has been designed and tested in accordance with international safety requirements. As with all electrical or electronic devices, some residual risks remain despite careful construction. To prevent personal injury and property damage and to ensure long-term operation of the product, read this section carefully and observe all safety information at all times.

### DANGER

#### **Danger to life due to electric shock when live components or conductors within the system are touched**

Depending on the product, the neutral conductor of the system is also switched and routed to a grounded neutral point on the backup power side. Depending on the system, capacitive leakage currents from the PV modules may be applied to the neutral conductor.

- For any work in the system, the battery-backup system must be taken out of operation and secured against reconnection.

### DANGER

#### **Danger to life due to electric shock when touching live system components in case of a ground fault**

If a ground fault occurs, parts of the system may still be live. Touching live parts and cables results in death or lethal injuries due to electric shock.

- Disconnect the system from voltage sources and make sure it cannot be reconnected before working on the device.
- Only touch the cables of the PV modules on their insulation.
- Do not touch any parts of the substructure or frame of the PV array.
- Do not connect PV strings with ground faults to the inverter.
- Once disconnected from voltage sources, wait five minutes before touching any parts of the PV system or the system.

**NOTICE****Damage to the system due to sand, dust and moisture ingress**

Sand, dust and moisture penetration can damage the products of the system and impair its functionality.

- Only open the product if the humidity is within the thresholds and the environment is free of sand and dust.
- Do not open the product during a dust storm or precipitation.
- Close the product in case of interruption of work or after finishing work.
- Only operate the product when it is closed.
- Close tightly all enclosure openings.

**NOTICE****Property damage due to short circuit caused by reversed input and output**

If the AC cables of the product are reversed for the terminals **BACKUP** and **GRID**, a short circuit may occur resulting in property damages.

- Ensure that the AC cables for BACKUP and GRID are connected correctly.
- If the AC cables are reversed, do not connect the utility grid.
- If the AC cables are reversed, switch off the inverter and the battery. On the inverter user interface set the parameter **Operation.BckTyp (Configuration of the backup type)** to **Off**.

### 3 Scope of Delivery

#### Backup Box

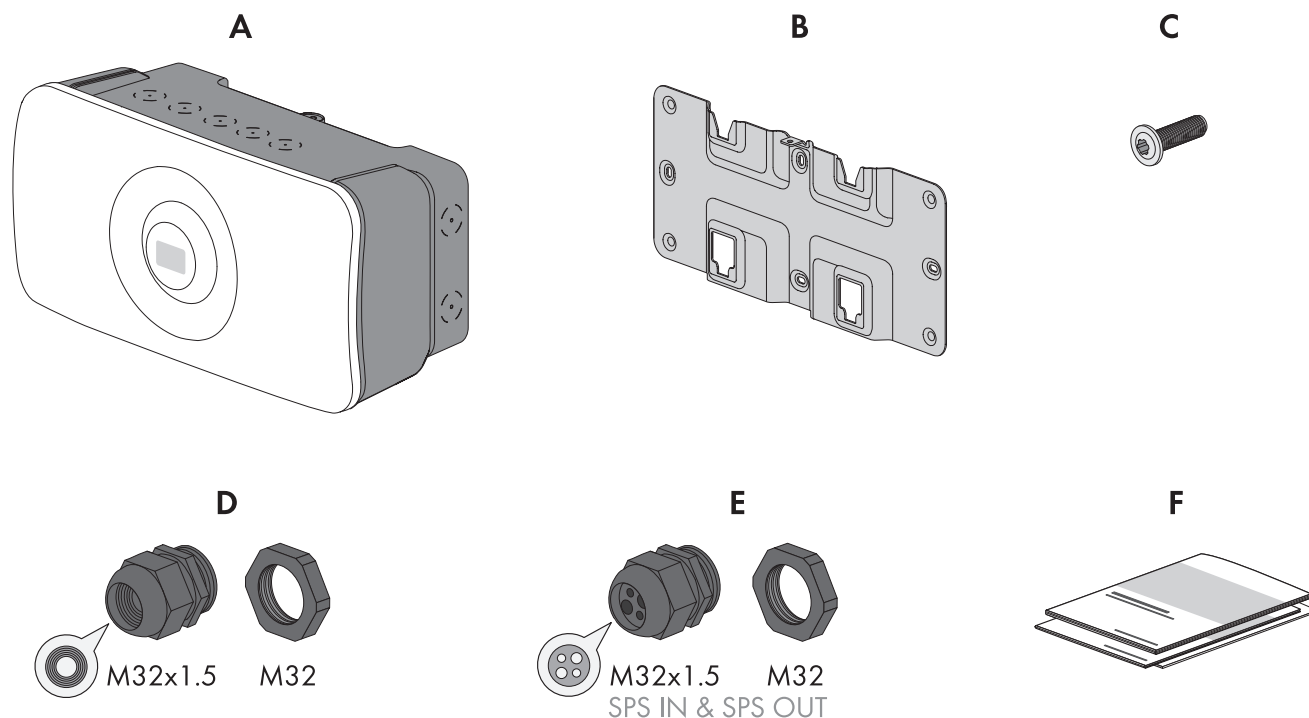


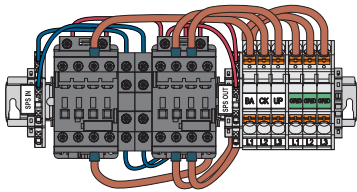
Figure 1: Backup Box scope of delivery

| Position | Quantity | Designation                                                                                                                                                                                                                        |
|----------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A        | 1        | Automatic transfer switching device                                                                                                                                                                                                |
| B        | 1        | Wall mounting bracket                                                                                                                                                                                                              |
| C        | 1        | Screw (M4x16) for securing the automatic transfer switching device to the wall mounting bracket                                                                                                                                    |
| D        | 2        | M32x1.5 cable gland with cable support sleeve for the AC connections                                                                                                                                                               |
| E        | 1        | M32x1.5 cable gland with four-hole cable support sleeve with 2 differently sized enclosure openings for connecting SPS IN and SPS OUT                                                                                              |
| F        | 1        | Documentation package consists of: <ul style="list-style-type: none"> <li>• Safety information booklet</li> <li>• Quick reference guide poster with illustrated instructions for initial installation and commissioning</li> </ul> |

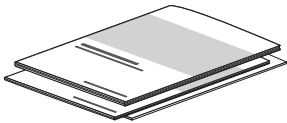
Backup Kit

BU-STPH-3P63K

A

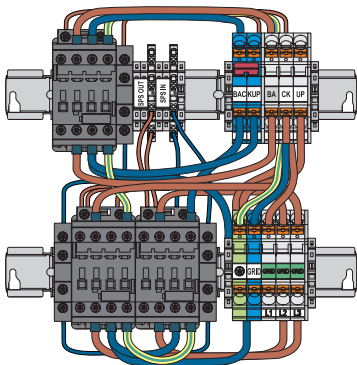


B



BU-STPH-4P63K

A



B

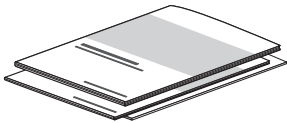


Figure 2: Backup Kit scope of delivery

| Position | Quantity | Designation                                                                                                                                                                                                                     |
|----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A        | 1        | Automatic transfer switching device (BU-STPH-3P63K / BU-STPH-4P63K)                                                                                                                                                             |
| B        | 1        | Documentation package consists of: <ul style="list-style-type: none"><li>• Safety information booklet</li><li>• Quick reference guide poster with illustrated instructions for initial installation and commissioning</li></ul> |

## 4 Product overview

### 4.1 Information about the automatic backup system

#### 4.1.1 Purpose of an Automatic Backup System

In the event of a grid failure, a PV system disconnects from the utility grid and the loads connected to the household grid are no longer supplied with energy.

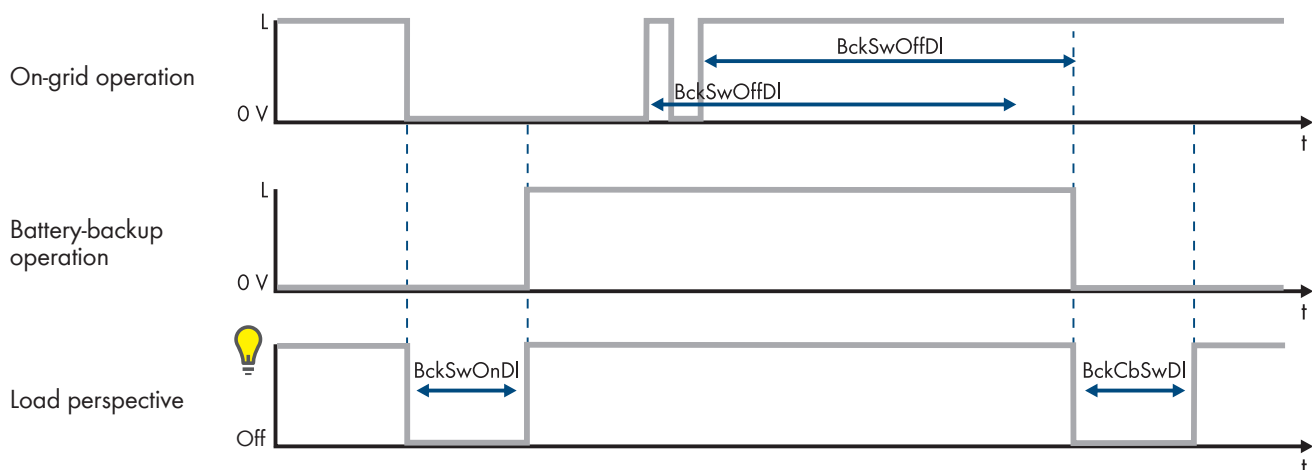
A grid failure lasting for a longer period can, in addition to reduced comfort, have serious consequences for the parties concerned, such as:

- Households and companies would have to manage without heat, light, telephone and computer.
- Refrigeration could be interrupted.
- For example, if stable ventilation systems or heat lamps lose power in a farming business.

Possible solutions for bridging this supply gap is to convert existing SMA solutions into battery-backup systems, or to design new systems as battery-backup systems.

The SMA Backup for the Sunny Tripower Hybrid X ensures that electrical loads continue to be supplied in the event of a grid failure. As a part of this, the SMA Backup disconnects the household grid with the PV system from the utility grid. The hybrid inverter then creates an automatic backup grid, and the PV system can thus continue to supply power to the loads. Additional inverters can support the battery-backup grid. When the energy demand of the active loads exceeds the current power of the PV system, the battery will provide the energy shortfall.

#### 4.1.2 Operating principle of the SMA Backup



##### Setting range

Operation.BckSwOnDI = 1 s to 600 s

Operation.BckSwOffDI = 1 s to 600 s

Operation.BckCbSwDI = 1 s to 60 s

Figure 3: Various SMA Backup operating modes

#### Procedure in the event of a grid failure

In the event of a grid failure, the loads are disconnected from the utility grid for the time defined in the parameter **Operation.BckSwOnDI (Minimum duration of grid fault for start of automatic backup operation)**. After the defined time, the loads on line conductors L1, L2, and L3 are supplied via the inverter's battery-backup operation. To avoid phase jumps on the load side, SMA Solar Technology AG recommends an appropriate switchover time. You can set this time via the parameter **Operation.BckSwOnDI (Minimum duration of grid fault for start of automatic backup operation)**.

## Return of the utility grid

During power outages or grid maintenance, the utility grid is typically switched on and off several times. The waiting time set in the parameter **Operation.BckSwOffDI (Minimum duration of grid recovery for deactivation of backup operation)** ensures that the system only switches back to parallel grid operation once the grid condition is truly stable. However, during this time, the loads continue to be supplied with battery backup power via the inverter. To prevent phase jumps when switching back to the utility grid, the loads are switched off again for the duration defined in parameter **Operation.BckCbSwDI (Interruption of load supply during the transition from automatic backup to feed-in operation)**. After this period, the loads are again supplied via the utility grid.

## 4.2 System Overview

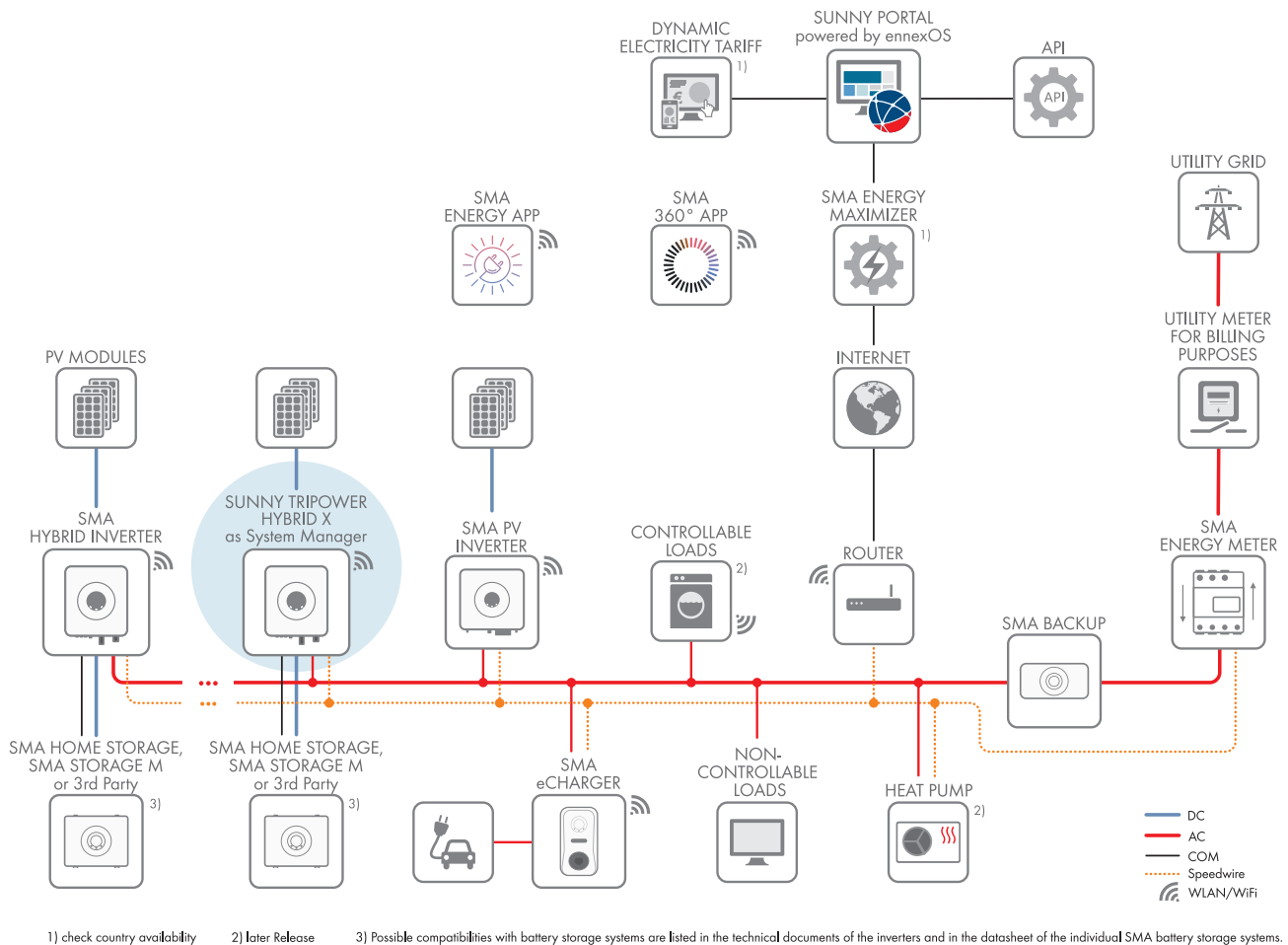


Figure 4: System Overview

## 5 Backup Box mounting and connection

### 5.1 Circuitry Overview

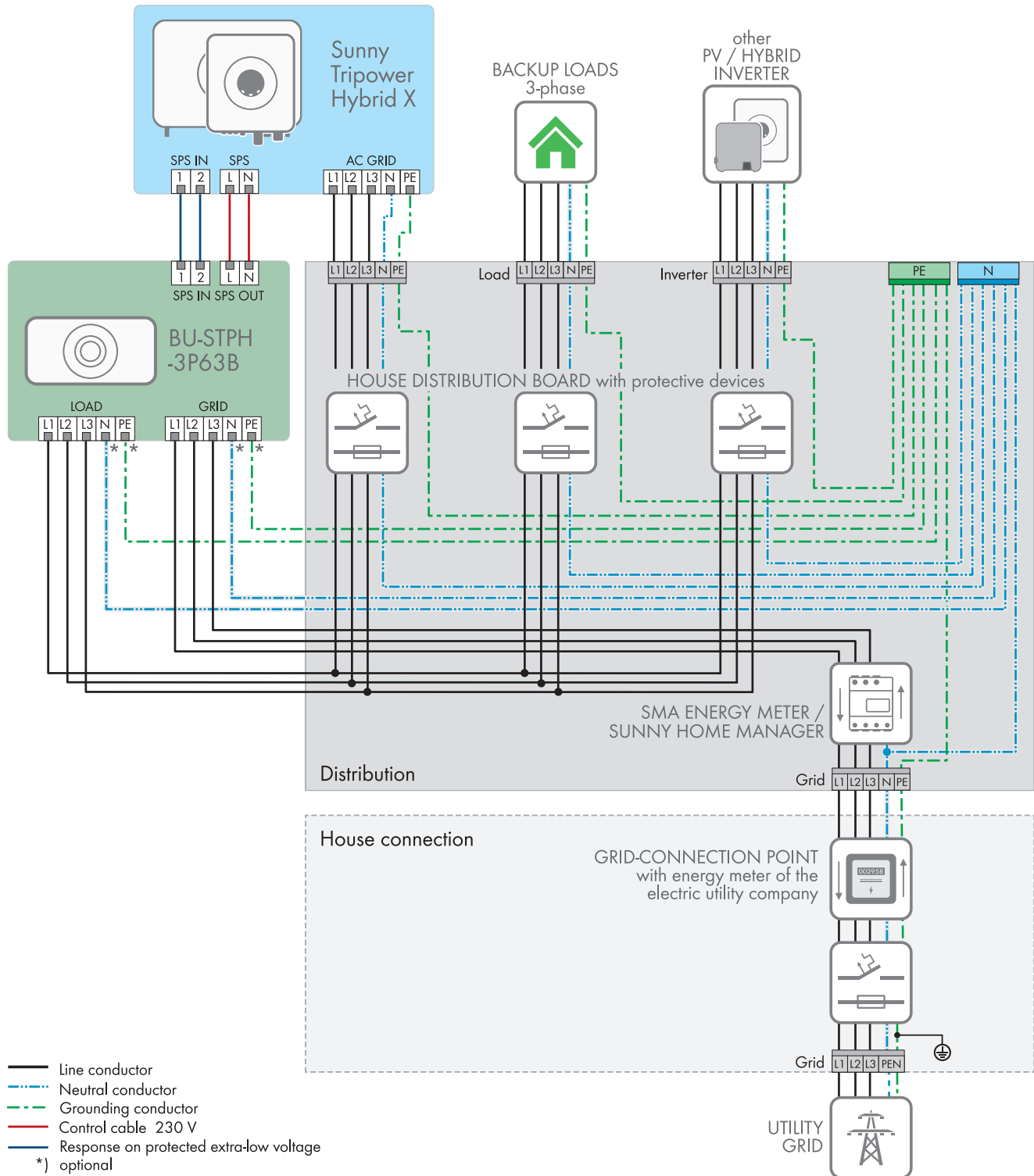


Figure 5: BU-STPH-3P63B circuitry overview

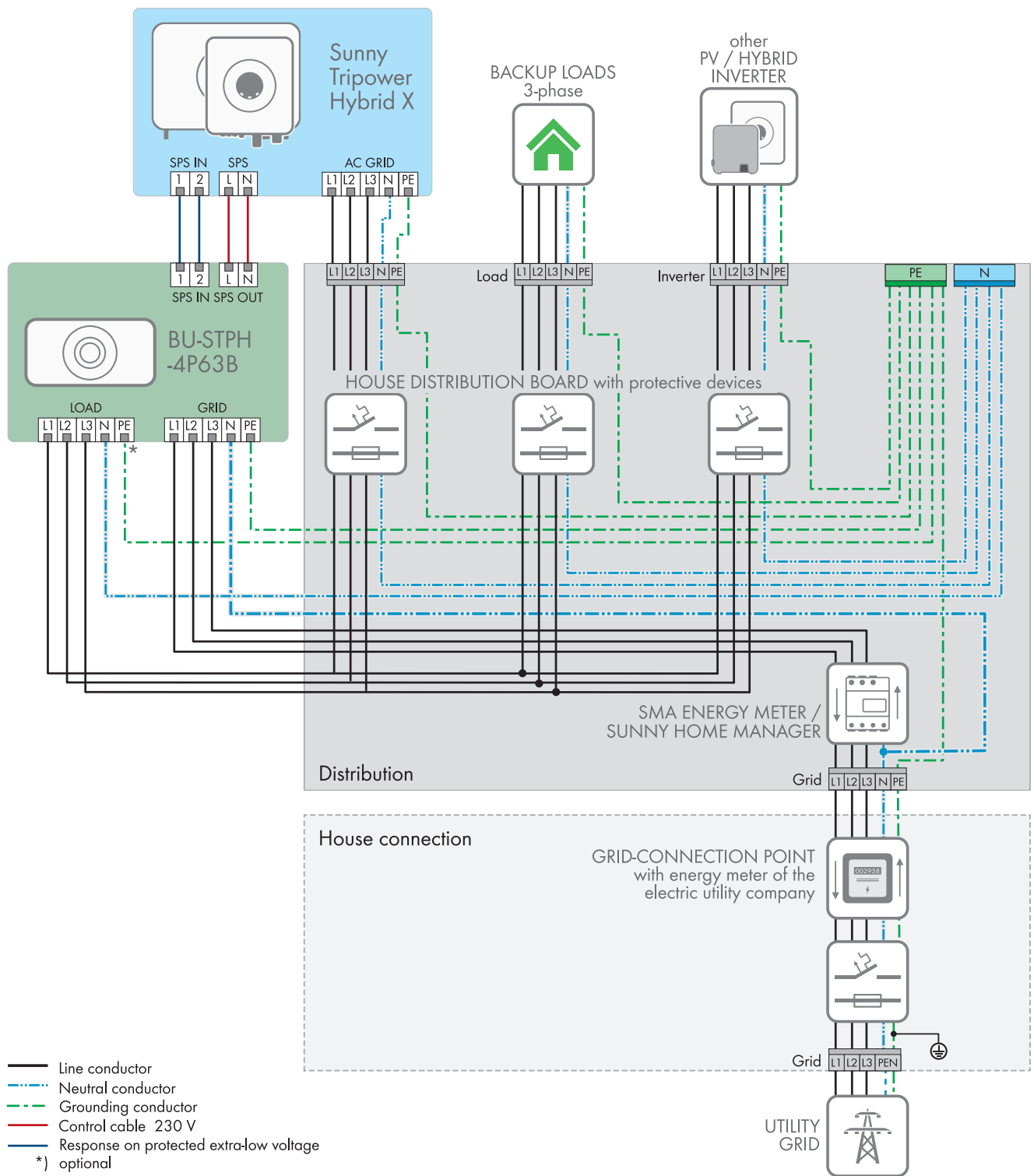


Figure 6: BU-STPH-4P63B circuitry overview

## 5.2 Product Description

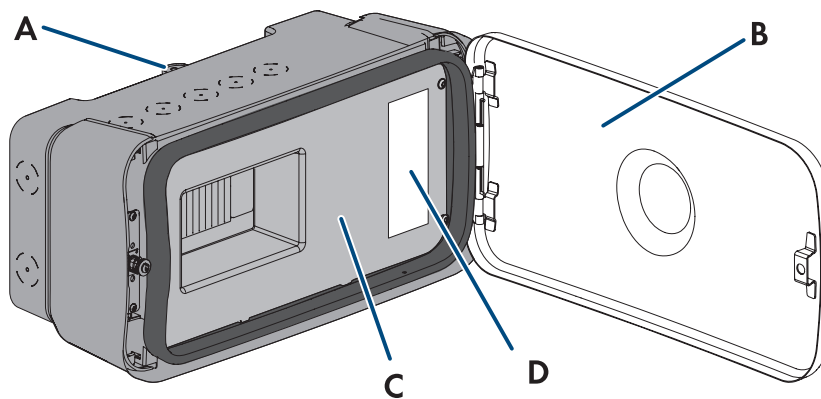


Figure 7: Product design

| Position | Designation                                           |
|----------|-------------------------------------------------------|
| A        | Fastening for attachment to the wall mounting bracket |
| B        | Lid                                                   |
| C        | Installation cover                                    |
| D        | Type label                                            |

## 5.3 Mounting

### 5.3.1 Requirements for the Mounting Location

#### ⚠ WARNING

##### **Danger to life due to fire or explosion**

Despite careful construction, electrical devices can cause fires. This can result in death or serious injury.

- Do not mount the product in areas containing highly flammable materials or gases.
- Do not mount the product in potentially explosive atmospheres.
- A solid, flat support surface must be available for mounting.
- The mounting location must be suitable for the weight and dimensions of the product.
- The mounting location must not be exposed to direct solar irradiation. Direct solar irradiation can cause the product to overheat.
- The installation site should be freely and safely accessible at all times without the need for any auxiliary equipment (such as scaffolding or lifting platforms). Non-fulfillment of these criteria may restrict servicing.
- All ambient conditions must be met.
- The product may only be mounted in a permitted mounting position.

### 5.3.2 Dimensions for mounting

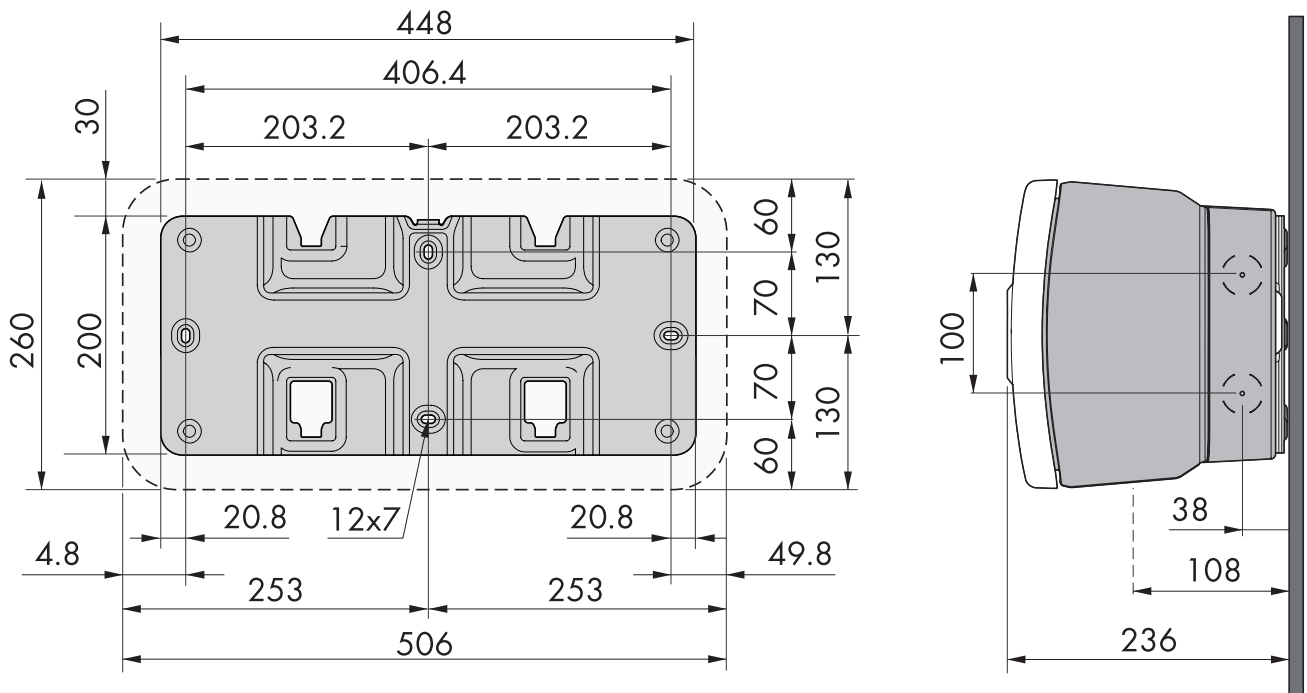


Figure 8: Dimensions in mm

### 5.3.3 Optional: Prepare the enclosure

Holes for enclosure openings are already provided on the bottom of the automatic transfer switching device enclosure. If the automatic transfer switching device is to be mounted in a different location, for example to the right or left of the inverter, you have the option of adapting the enclosure to meet your requirements. Possible holes are marked on the right, left, top and bottom.

#### Procedure:

1. Drill the required holes with a step drill. The holes must not be larger than the size marked on the enclosure. When drilling, make sure that no internal cables or components of the automatic transfer switching device are damaged.
2. Remove drilling chips from the enclosure.
3. Before installation, observe the minimum distance to the inverter (see product manual).

### 5.3.4 Wall Mounting

#### Additionally required material:

- 2 screws that are suitable for the support surface and the weight of the automatic transfer switching device
- 2 washers that are suitable for the support surface and the weight of the automatic transfer switching device.
- Where necessary, 2 screw anchors suitable for the support surface and the screws

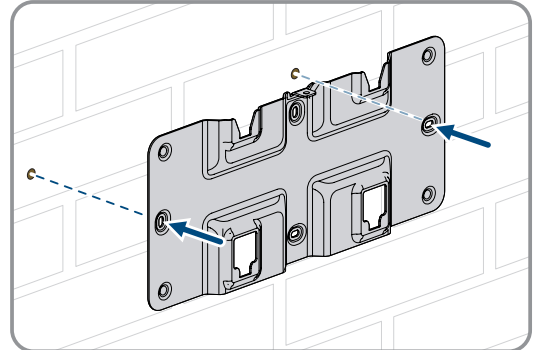
#### Requirements:

- ☐ To avoid overheating, do not install the automatic transfer switching device where it is exposed to direct solar irradiation, or it must be protected from direct solar irradiation by appropriate measures.

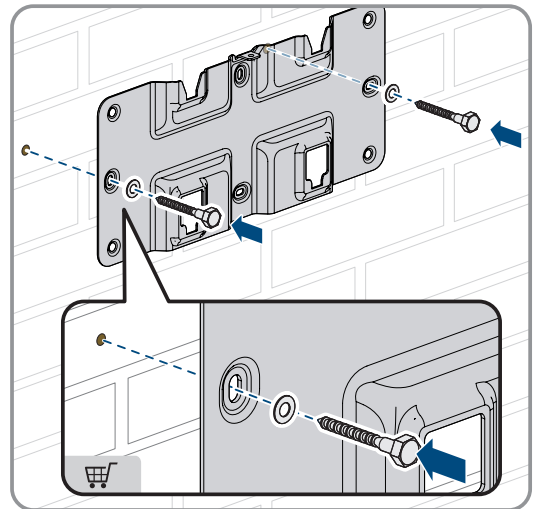
**Procedure:**

1. Set the position for the automatic transfer switching device. Consider the possible cable route. The automatic transfer switching device can be installed to the right or left of the inverter, or under the inverter. SMA Solar Technology recommends installing the automatic transfer switching device under the inverter.  
The automatic transfer switching device must be mounted on a sufficiently load-bearing and closed wall.

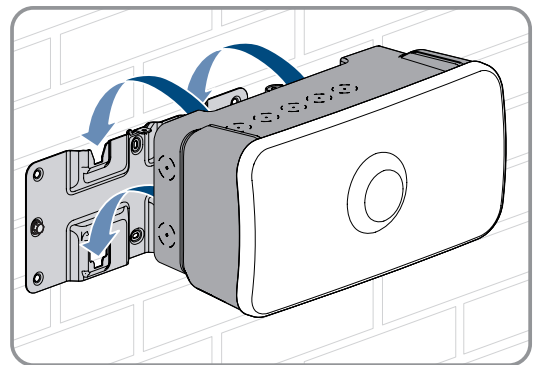
2. Align the wall mounting bracket horizontally on the wall and mark the position of the drill holes.
3. Set the wall mounting bracket aside and drill the marked holes.
4. Insert screw anchors into the drill holes if the support surface requires them.



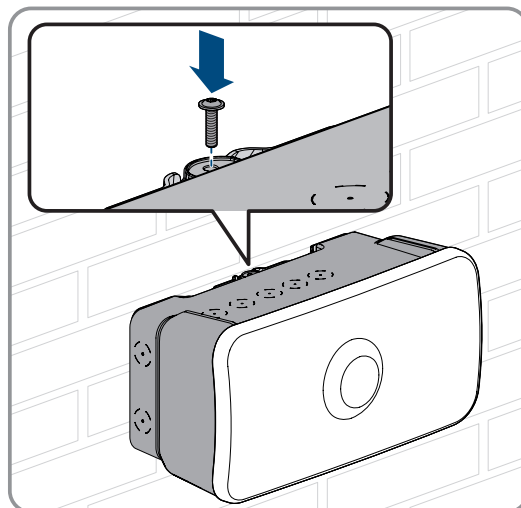
5. Secure the wall mounting bracket horizontally using screws and washers.



6. Hang the automatic transfer switching device onto the wall mounting bracket from above.



7. Make sure that the automatic transfer switching device is correctly mounted on the wall mounting bracket.
8. Insert the supplied screw (M4x16, TX20) into the hole to secure the automatic transfer switching device to the wall mounting bracket and tighten the screw.

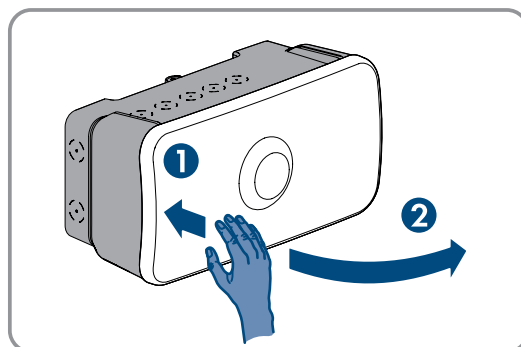


### 5.3.5 Optional: Remove lid

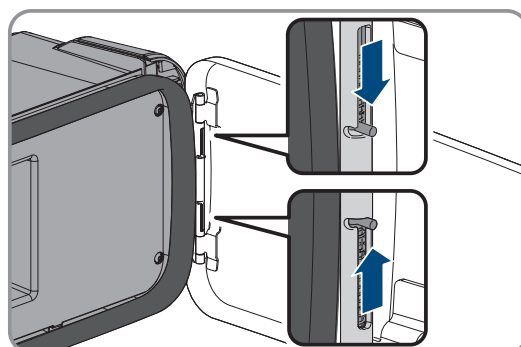
If necessary, you can remove the lid of the enclosure of the automatic transfer switching device. This can be helpful during installation or electrical connection, for example.

#### Procedure:

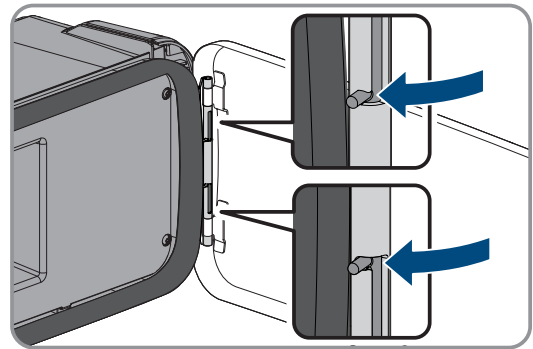
1. Open the lid of the enclosure. To do this, press on the left side of the lid with your hand.



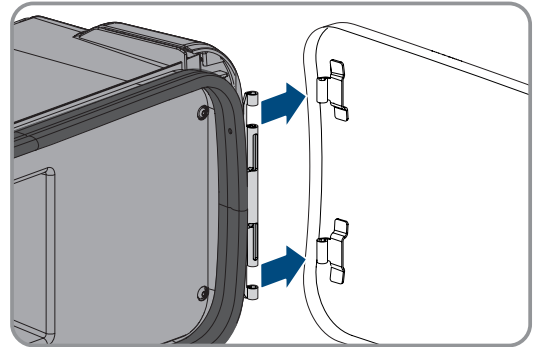
2. Open the hinge. To do this, press the two latches down or up.  
**Information:** The hinge is easier to open if the enclosure lid is not opened all the way back.



3. Slide the two latches into the opening of the hinge.



4. Remove the lid.



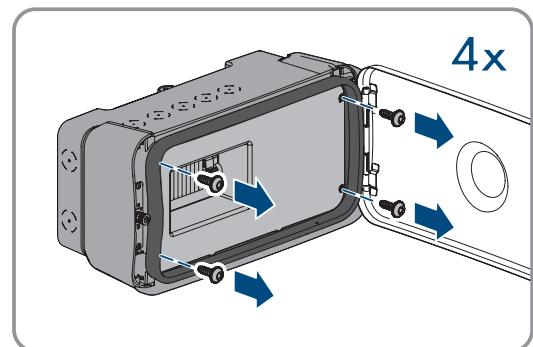
### 5.3.6 Removing the installation cover

#### Requirement:

- The lid of the enclosure of the automatic transfer switching device has been opened or removed.

#### Procedure:

1. Disconnect the miniature circuit breaker for all line conductors and secure against reconnection.
2. Disconnect the inverter from voltage sources (see inverter manual).
3. If available, switch off the battery (see battery manual).
4. Loosen the 4 screws (TX20) for fastening the installation cover.
5. Remove the installation cover.



## 5.4 Electrical Connection

### 5.4.1 Requirements for the electrical connection

#### 5.4.1.1 SPS IN signal cable requirements

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

- Conductor type: copper wire
- The conductors must be solid or stranded wire.
- Conductor cross-section: max. 0.34 mm<sup>2</sup>
- Outer diameter: max. 9 mm

- Insulation stripping length: 8 mm to 10 mm
- Maximum length of conductors: 30 m
- The cable type and cable-laying method must be appropriate for the application and location.
- Do not lay the SPS input and SPS output lines together in one cable

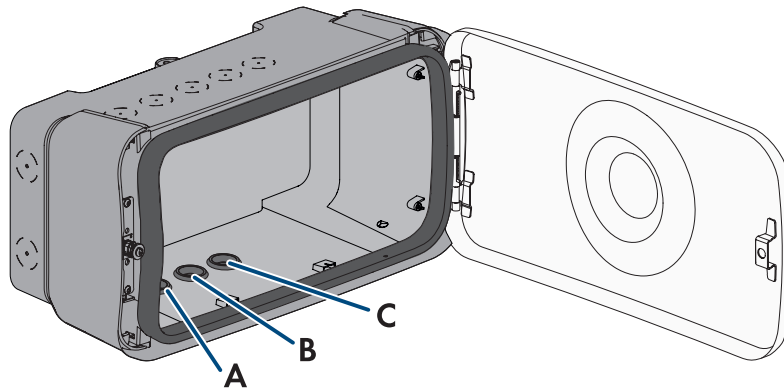
#### **5.4.1.2 Requirements on the SPS OUT AC cable for connection to the inverter**

- Conductor type: copper wire
- The conductors must be solid or stranded wire.
- Conductor cross-section when using solid or stranded wire without bootlace ferrules: 1.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup>
- Conductor cross-section when using bootlace ferrules: 1.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup>
- Outer diameter: max. 9 mm
- Insulation stripping length: 8 mm to 10 mm
- Maximum length of conductors: 30 m
- Do not lay the SPS input and SPS output lines together in one cable

#### **5.4.1.3 Requirements on the AC cables for the BACKUP and GRID connections**

- Conductor type: copper wire
- The conductors must be solid or stranded wire.
- Outer diameter: 10 mm to 25 mm
- Connectable conductor cross-section: 4 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Connectable conductor cross-section, fine wire, when using bootlace ferrules: 4 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Connectable conductor cross-section, fine wire, without bootlace ferrules: 4 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Connectable conductor cross-section, multi-wire: 4 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Insulation stripping length: 18 mm to 20 mm
- Maximum length of conductors: 30 m
- The cable and conductor cross-sections must always be dimensioned according to the local and national directives and within the range specified by the manufacturer (SMA Solar Technology AG). If the manufacturer (SMA Solar Technology AG) requires a higher conductor cross-section than the standard, the range of the manufacturer must be observed. Examples of factors influencing cable dimensioning are: nominal AC current, type of cable, routing method, cable bundling, ambient temperature and maximum desired line losses (for calculation of line losses, see the design software "Sunny Design" from software version 2.0 at [www.SMA-Solar.com](http://www.SMA-Solar.com)).

### 5.4.2 Enclosure opening



| Position | cable                                       |
|----------|---------------------------------------------|
| A        | AC cable for connection to the utility grid |
| B        | AC cable for connection of backup loads     |
| C        | AC cable SPS IN and SPS OUT                 |

### 5.4.3 Overview of the Connection Area

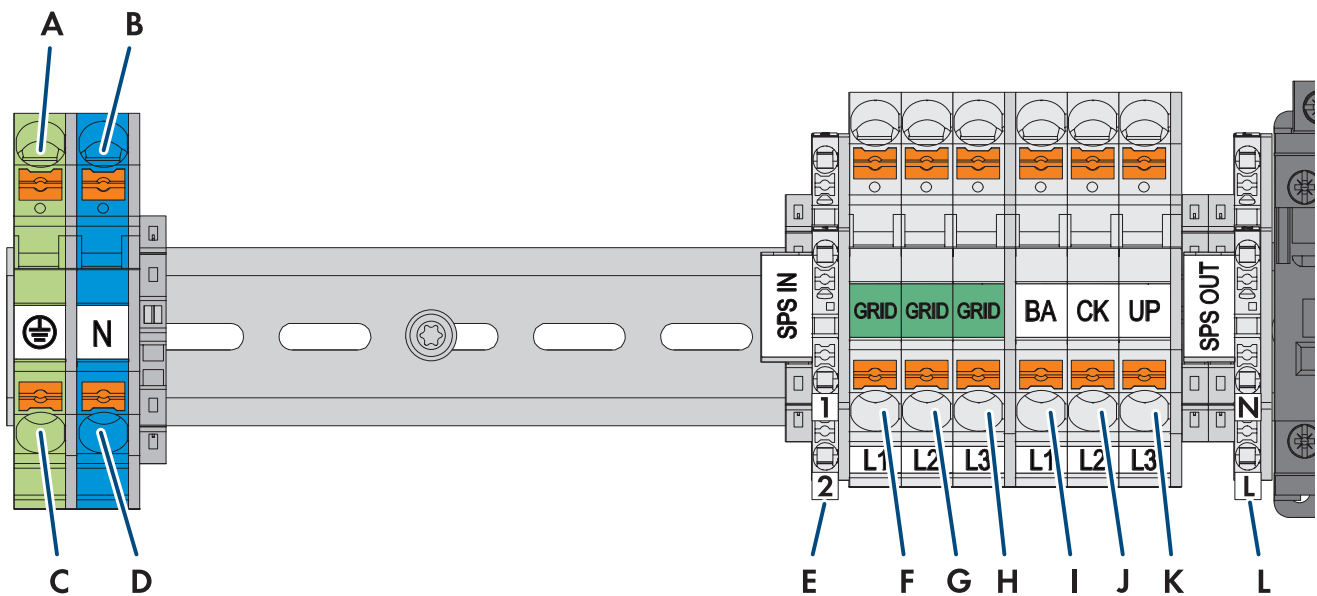


Figure 9: Overview of the BU-STPH-3P63B connection area

| Position  | Designation                                          |
|-----------|------------------------------------------------------|
| A         | PE connection for the backup loads                   |
| B         | N connection for the backup loads                    |
| C         | PE connection for the utility grid                   |
| D         | N connection for the utility grid                    |
| E         | Connection for the inverter's SPS IN AC cable        |
| F / G / H | L1, L2 and L3 for the connection to the utility grid |

| Position  | Designation                                          |
|-----------|------------------------------------------------------|
| I / J / K | L1, L2 and L3 for the connection of the backup loads |
| L         | Connection for the inverter's SPS OUT AC cable       |

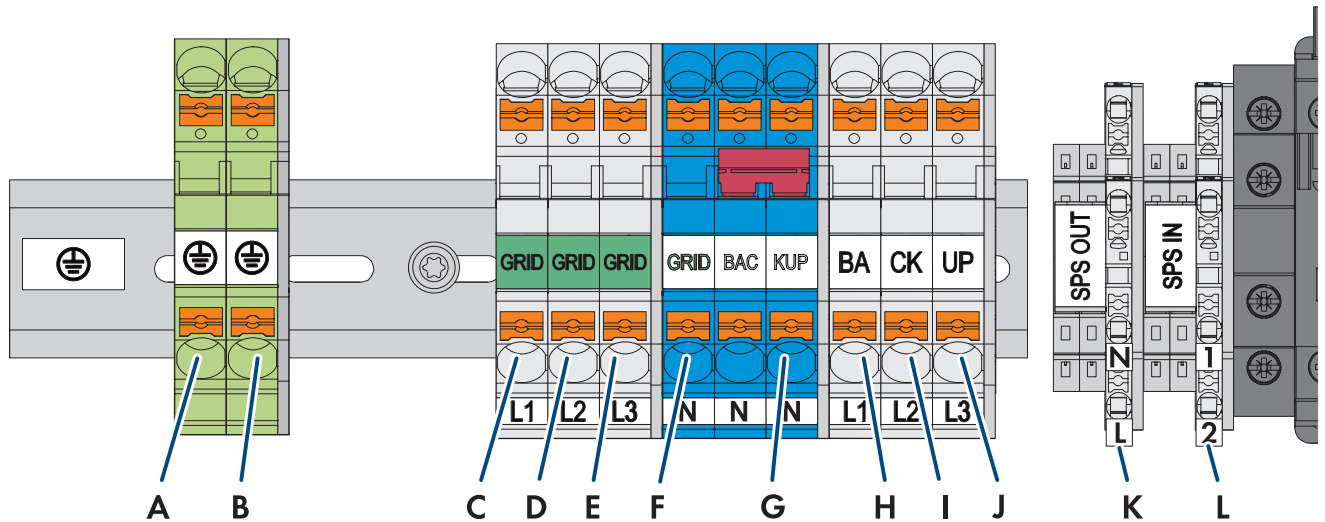


Figure 10: Overview of the BU-STPH-4P63B connection area

| Position  | Designation                                          |
|-----------|------------------------------------------------------|
| A         | PE connection for the utility grid                   |
| B         | PE connection for the backup loads                   |
| C / D / E | L1, L2 and L3 for the connection to the utility grid |
| F         | N connection for the utility grid                    |
| G         | N connection for the backup loads                    |
| H / I / J | L1, L2 and L3 for the connection of the backup loads |
| K         | Connection for the inverter's SPS OUT AC cable       |
| L         | Connection for the inverter's SPS IN AC cable        |

## 5.4.4 Connecting the Cables to the Automatic Transfer Switching Device

### 5.4.4.1 Connecting the cables to BU-STPH-3P63B

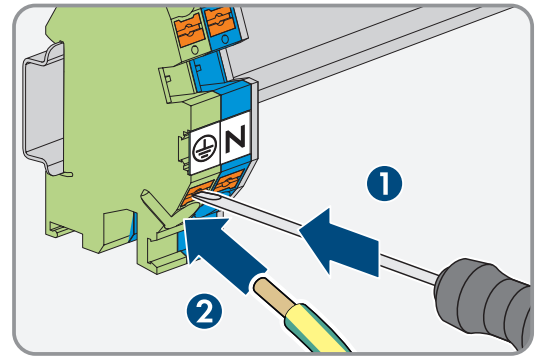
#### Requirement:

- ☐ The lid of the enclosure on the automatic transfer switching device has been opened or removed.
- ☐ The installation cover of the automatic transfer switching device has been removed.

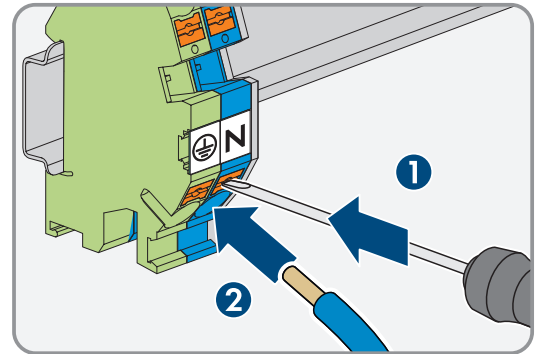
#### Procedure:

1. Disconnect the inverter from all voltage sources (see inverter manual).
2. Switch off the battery (see battery manual).
3. Switch off the AC fuse in the meter cabinet.

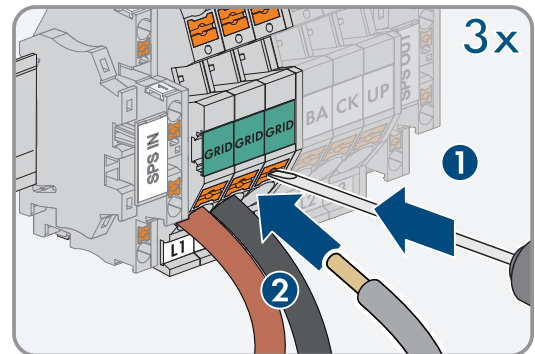
4. Connect conductor PE for connection to the utility grid to the **PE** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



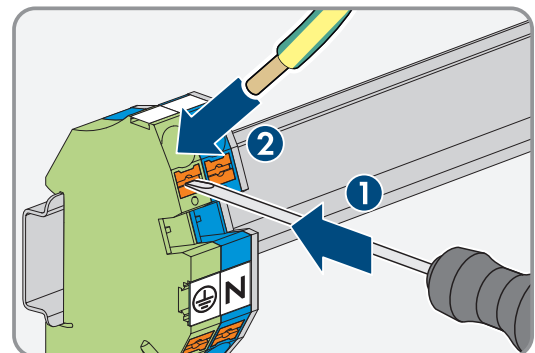
5. Connect conductor N for connection to the utility grid to the **N** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



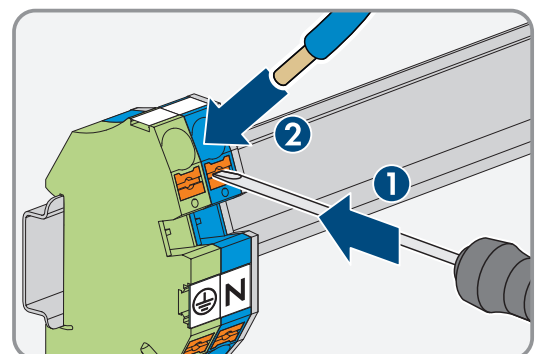
6. Connect conductors L1, L2 and L3 for the connections to the utility grid to the **GRID L1, GRID L2 and GRID L3** terminals on the automatic transfer switching device. To do this, unlock the terminals with a suitable tool (blade width 5.5 mm).



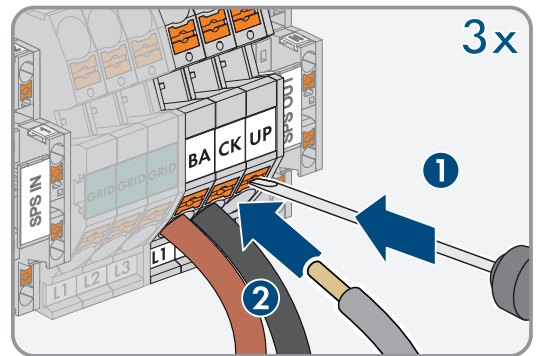
7. Connect conductor PE for the connection of the backup loads to the **PE** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



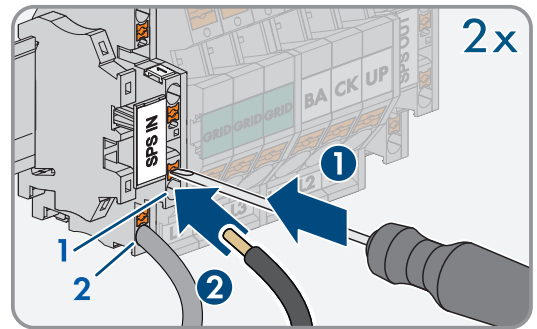
8. Connect conductor N for the connection of the backup loads to the **N** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



9. Connect conductors L1, L2 and L3 for the backup loads to the **Backup L1, Backup L2 and Backup L3** terminals on the automatic transfer switching device. To do this, unlock the terminals with a suitable tool (blade width 5.5 mm).

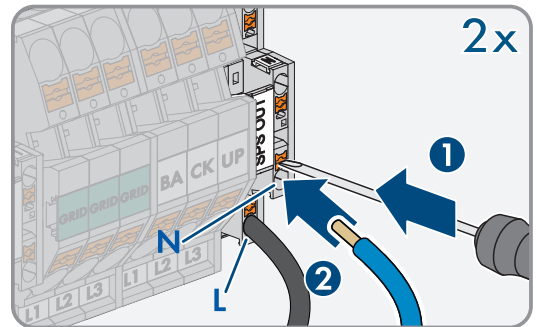


10. Connect the **SPS IN** AC cable to the **1** and **2** terminals on the automatic transfer switching device as labeled. To do this, unlock the terminal with a suitable tool (blade width 3.5 mm).



11. Connect the **SPS OUT** AC cable to the **L** and **N** terminals on the automatic transfer switching device as labeled. To do this, unlock the terminal with a suitable tool (blade width 3.5 mm).

12. Ensure that all conductors are securely in place.



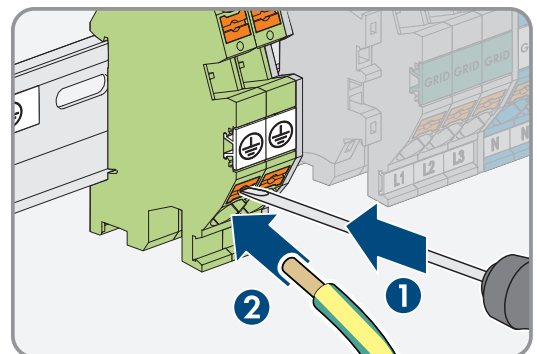
#### 5.4.4.2 Connecting the cables to BU-STPH-4P63B

##### Requirement:

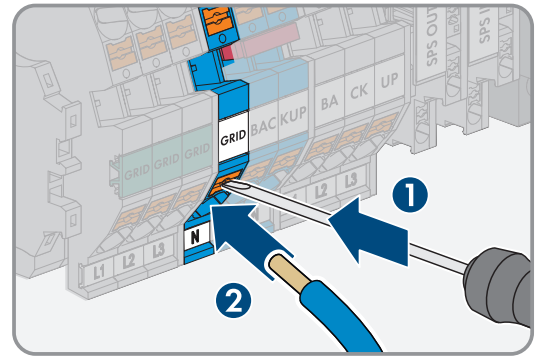
- ☐ The lid of the enclosure on the automatic transfer switching device has been opened or removed.
- ☐ The installation cover of the automatic transfer switching device has been removed.

##### Procedure:

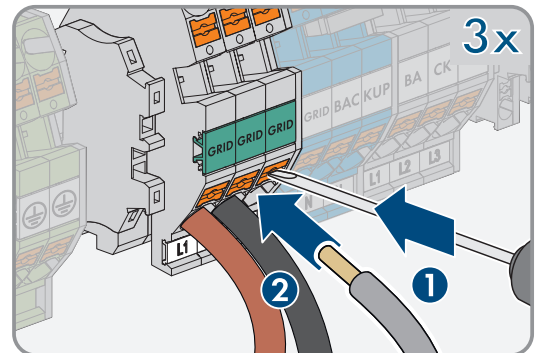
1. Disconnect the inverter from all voltage sources (see inverter manual).
2. Switch off the battery (see battery manual).
3. Switch off the AC fuse in the meter cabinet.
4. Connect conductor PE for connection to the utility grid to the **PE** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



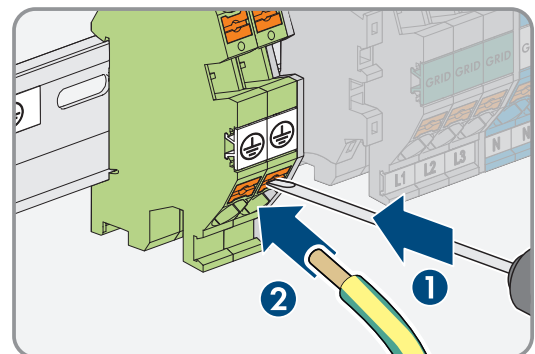
5. Connect conductor N for connection to the utility grid to the **N** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



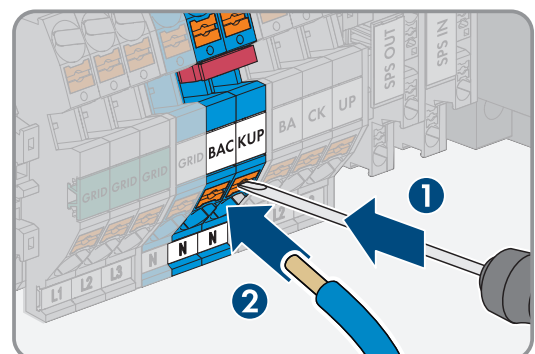
6. Connect conductors L1, L2 and L3 for the connections to the utility grid to the **GRID L1**, **GRID L2** and **GRID L3** terminals on the automatic transfer switching device. To do this, unlock the terminals with a suitable tool (blade width 5.5 mm).



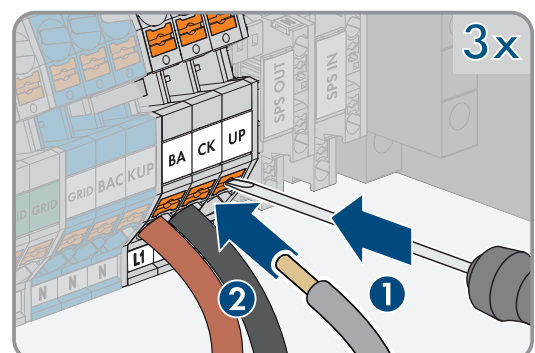
7. Connect conductor PE for the connection of the backup loads to the **PE** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



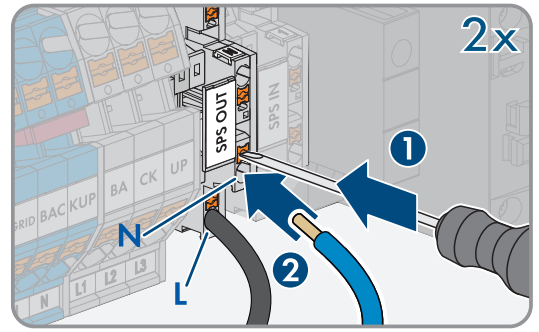
8. Connect conductor N for the connection of the backup loads to the **N** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



9. Connect conductors L1, L2 and L3 for the backup loads to the **Backup L1**, **Backup L2** and **Backup L3** terminals on the automatic transfer switching device. To do this, unlock the terminals with a suitable tool (blade width 5.5 mm).



10. Connect the **SPS OUT** AC cable to the **L** and **N** terminals on the automatic transfer switching device as labeled. To do this, unlock the terminal with a suitable tool (blade width 3.5 mm).



11. Connect the **SPS IN** AC cable to the **1** and **2** terminals on the automatic transfer switching device as labeled. To do this, unlock the terminal with a suitable tool (blade width 3.5 mm).
12. Ensure that all conductors are securely in place.

## 6 Backup Kit mounting and connection

### 6.1 Circuitry Overview

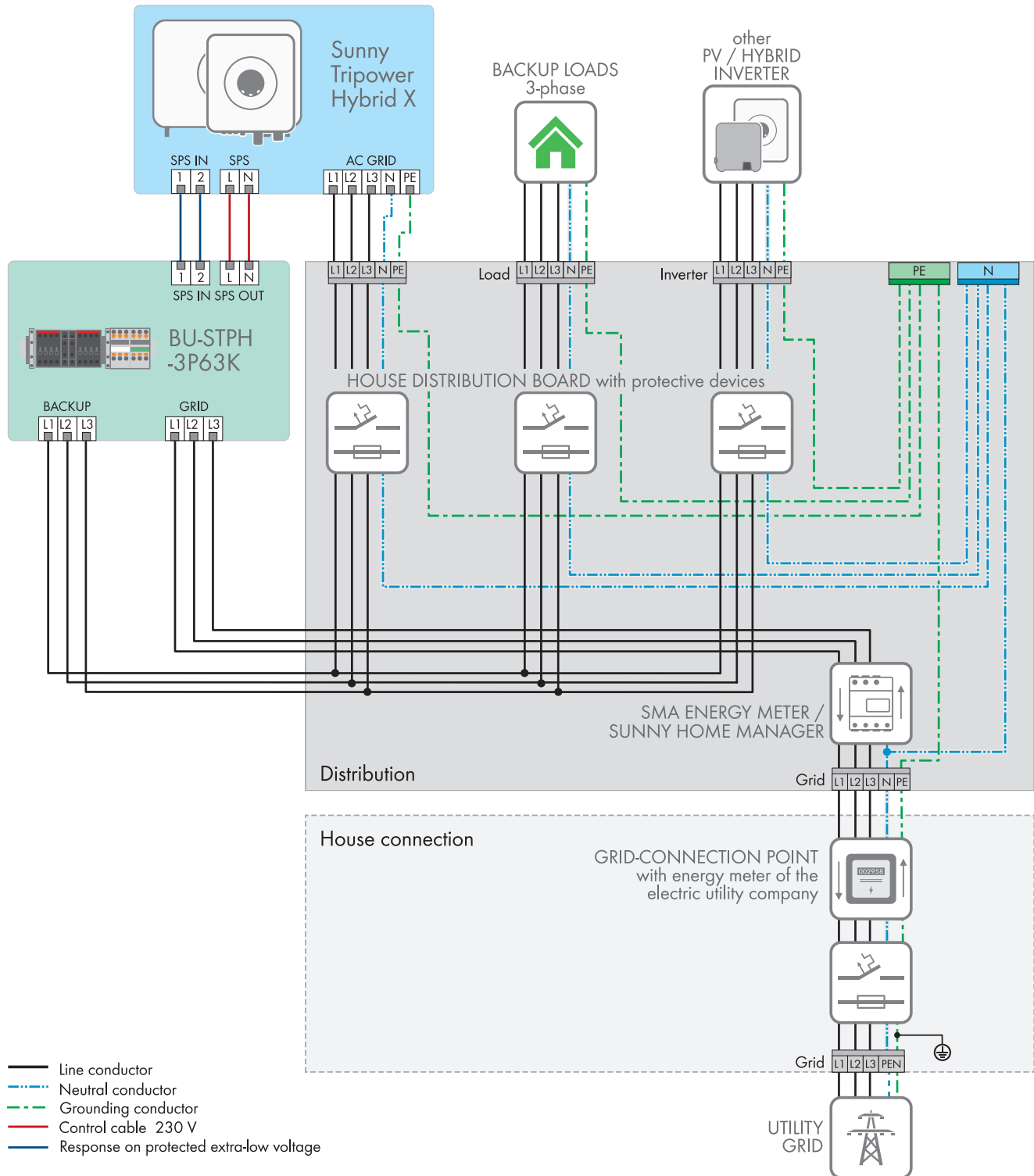


Figure 12: BU-STPH-3P63K circuitry overview

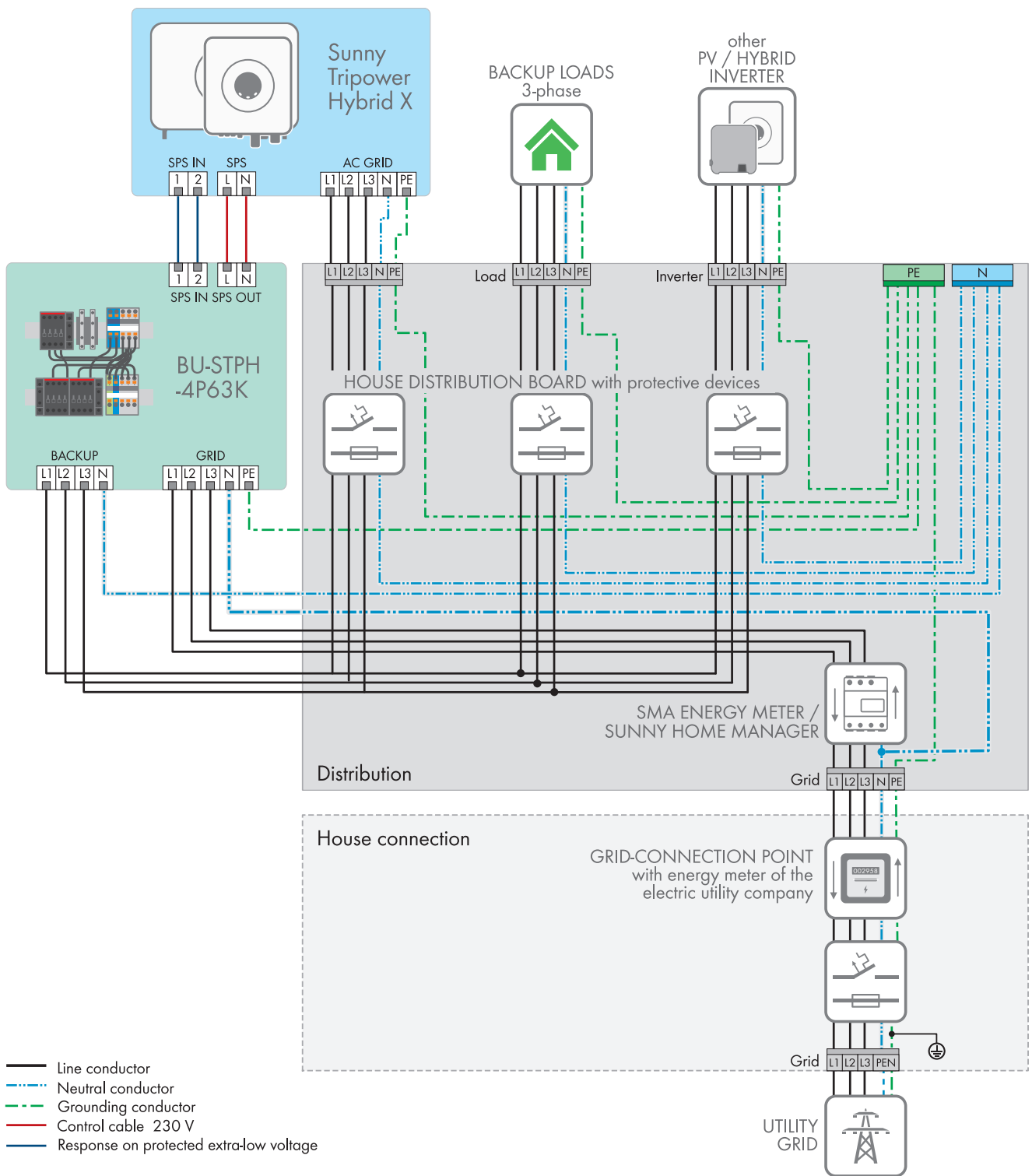


Figure 13: BU-STPH-4P63K circuitry overview

## 6.2 Requirements for the Mounting Location

### WARNING

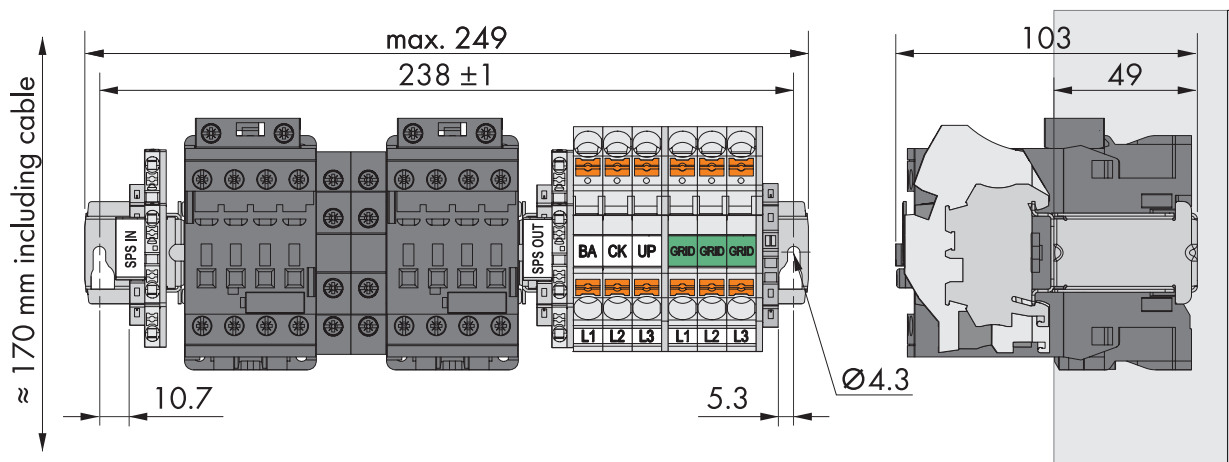
#### **Danger to life due to fire or explosion**

Despite careful construction, electrical devices can cause fires. This can result in death or serious injury.

- Do not mount the product in areas containing highly flammable materials or gases.
  - Do not mount the product in potentially explosive atmospheres.
- 
- The mounting location must not be exposed to direct solar irradiation. Direct solar irradiation can cause the product to overheat.
  - The installation site should be freely and safely accessible at all times without the need for any auxiliary equipment (such as scaffolding or lifting platforms). Non-fulfillment of these criteria may restrict servicing.
  - All ambient conditions must be met.
  - The product may only be mounted in a permitted mounting position.

## 6.3 Dimensions for mounting

### BU-STPH-3P63K



### BU-STPH-4P63K

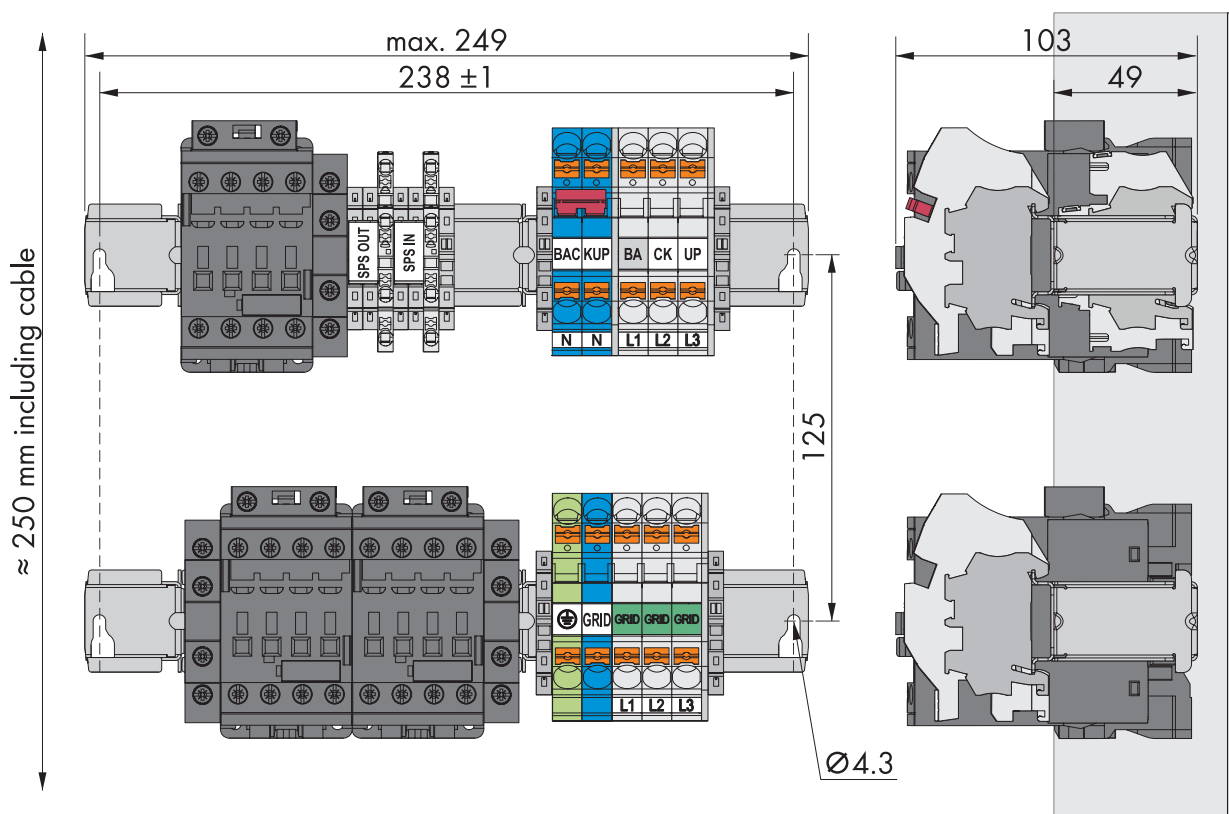


Figure 14: Dimensions in mm

## 6.4 Electrical Connection

### 6.4.1 Requirements for the electrical connection

#### 6.4.1.1 SPS IN signal cable requirements

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

- Conductor type: copper wire
- The conductors must be solid or stranded wire.

- Conductor cross-section: max. 0.34 mm<sup>2</sup>
- Outer diameter: max. 9 mm
- Insulation stripping length: 8 mm to 10 mm
- Maximum length of conductors: 30 m
- The cable type and cable-laying method must be appropriate for the application and location.
- Do not lay the SPS input and SPS output lines together in one cable

#### 6.4.1.2 Requirements on the SPS OUT AC cable for connection to the inverter

- Conductor type: copper wire
- The conductors must be solid or stranded wire.
- Conductor cross-section when using solid or stranded wire without bootlace ferrules: 1.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup>
- Conductor cross-section when using bootlace ferrules: 1.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup>
- Outer diameter: max. 9 mm
- Insulation stripping length: 8 mm to 10 mm
- Maximum length of conductors: 30 m
- Do not lay the SPS input and SPS output lines together in one cable

#### 6.4.1.3 Requirements on the AC cables for the BACKUP and GRID connections

- Conductor type: copper wire
- The conductors must be solid or stranded wire.
- Outer diameter: 10 mm to 25 mm
- Connectable conductor cross-section: 4 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Connectable conductor cross-section, fine wire, when using bootlace ferrules: 4 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Connectable conductor cross-section, fine wire, without bootlace ferrules: 4 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Connectable conductor cross-section, multi-wire: 4 mm<sup>2</sup> to 16 mm<sup>2</sup>
- Insulation stripping length: 18 mm to 20 mm
- Maximum length of conductors: 30 m
- The cable and conductor cross-sections must always be dimensioned according to the local and national directives and within the range specified by the manufacturer (SMA Solar Technology AG).<sup>1</sup> If the manufacturer (SMA Solar Technology AG) requires a higher conductor cross-section than the standard, the range of the manufacturer must be observed. Examples of factors influencing cable dimensioning are: nominal AC current, type of cable, routing method, cable bundling, ambient temperature and maximum desired line losses (for calculation of line losses, see the design software "Sunny Design" from software version 2.0 at [www.SMA-Solar.com](http://www.SMA-Solar.com)).

## 6.4.2 Overview of the Connection Area

### BU-STPH-3P63K

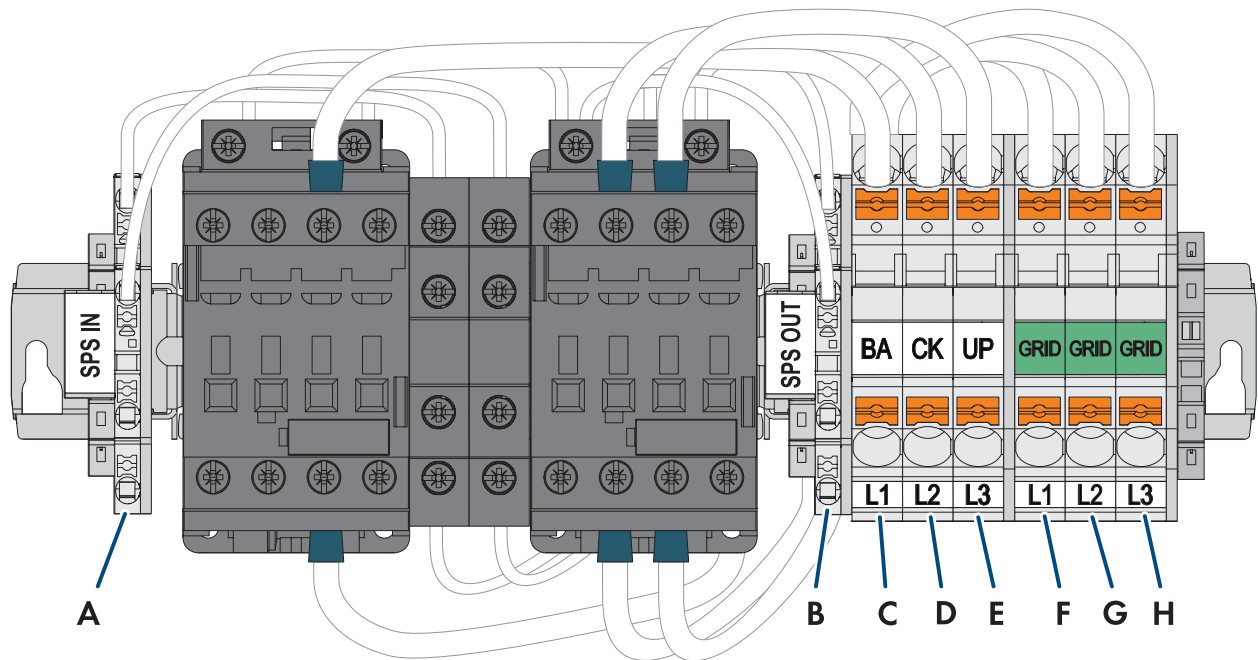
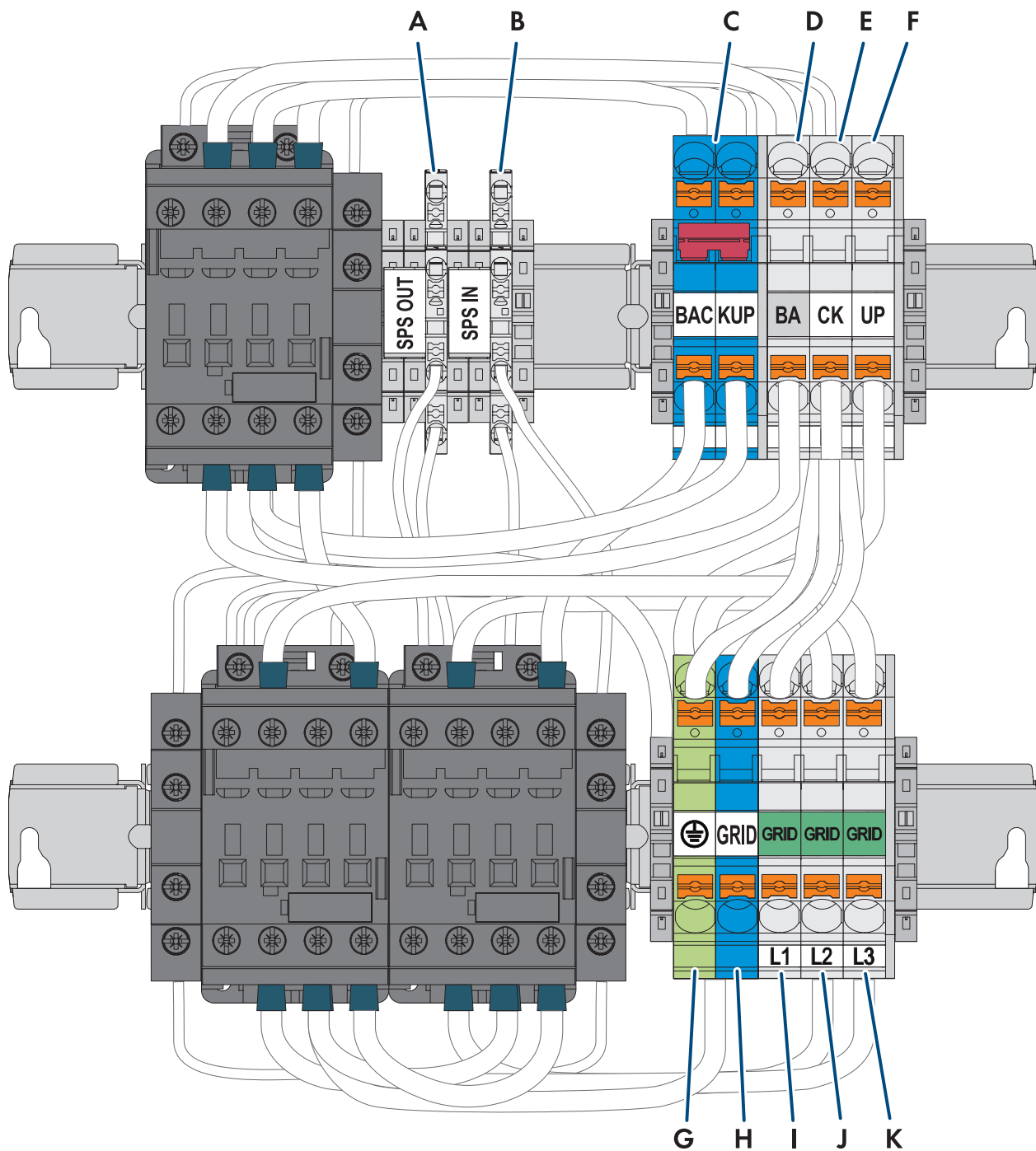


Figure 15: Overview of the **BU-STPH-3P63K** connection area

| Position  | Designation                                          |
|-----------|------------------------------------------------------|
| A         | Connection for the inverter's SPS IN AC cable        |
| B         | Connection for the inverter's SPS OUT AC cable       |
| C / D / E | L1, L2 and L3 for the connection of the backup loads |
| F / G / H | L1, L2 and L3 for the connection to the utility grid |

## BU-STPH-4P63K

Figure 16: Overview of the **BU-STPH-4P63K** connection area

| Position  | Designation                                          |
|-----------|------------------------------------------------------|
| A         | Connection for the inverter's SPS OUT AC cable       |
| B         | Connection for the inverter's SPS IN AC cable        |
| C         | N connection for the backup loads                    |
| D / E / F | L1, L2 and L3 for the connection of the backup loads |
| G         | PE connection for the backup loads                   |

| Position  | Designation                                          |
|-----------|------------------------------------------------------|
| H         | N connection for the utility grid                    |
| I / J / K | L1, L2 and L3 for the connection to the utility grid |

### 6.4.3 Connecting the Cables to the Automatic Transfer Switching Device

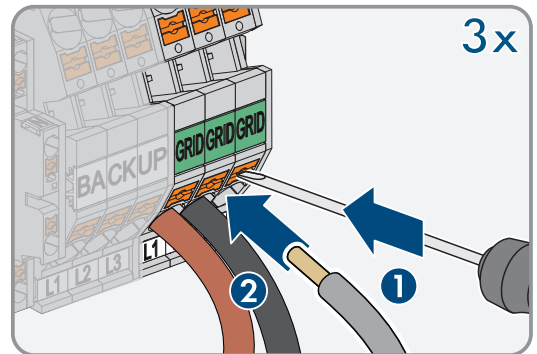
#### 6.4.3.1 Connecting the cables to BU-STPH-3P63K

##### Requirement:

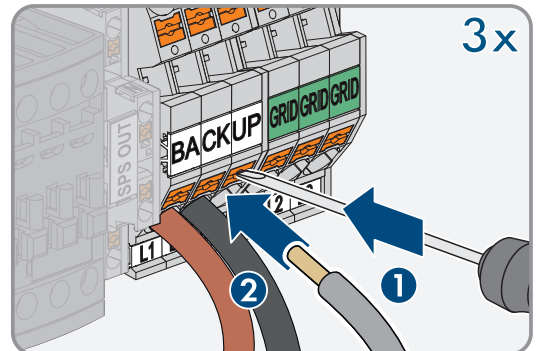
- ☐ The meter cabinet is open.

##### Procedure:

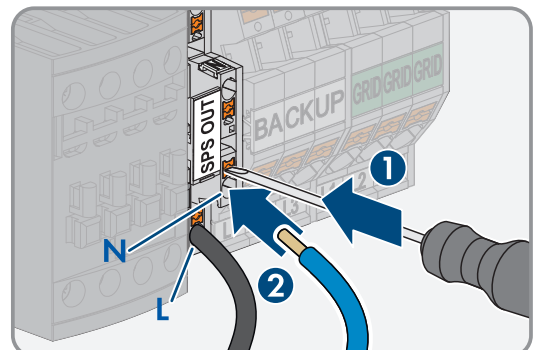
1. Disconnect the inverter from all voltage sources (see inverter manual).
2. Switch off the battery (see battery manual).
3. Switch off the grid-side AC fuse in the meter cabinet.
4. Connect conductors L1, L2 and L3 for the connections to the utility grid to the **GRID L1**, **GRID L2** and **GRID L3** terminals on the automatic transfer switching device. To do this, unlock the terminals with a suitable tool (blade width 5.5 mm).



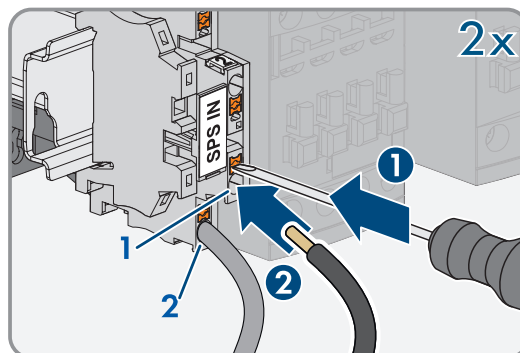
5. Connect conductors L1, L2 and L3 for the backup loads to the **Backup L1**, **Backup L2** and **Backup L3** terminals on the automatic transfer switching device. To do this, unlock the terminals with a suitable tool (blade width 5.5 mm).



6. Connect the **SPS OUT** AC cable to the **L** and **N** connections on the automatic transfer switching device as labeled. To do this, unlock the terminal with a suitable tool (blade width 3.5 mm).



7. Connect the **SPS IN** AC cable to the **1** and **2** connections on the automatic transfer switching device as labeled. To do this, unlock the terminal with a suitable tool (blade width 3.5 mm).
8. Ensure that all conductors are securely in place.



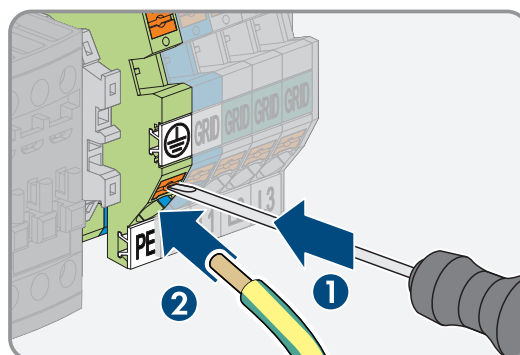
### 6.4.3.2 Connecting the cables to BU-STPH-4P63K

#### Requirement:

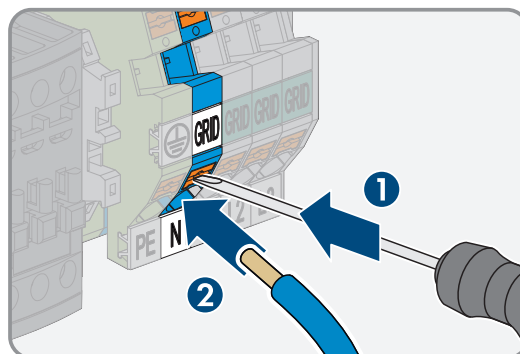
- ☐ The meter cabinet is open.

#### Procedure:

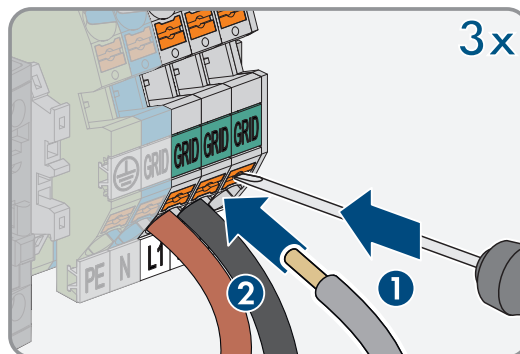
1. Disconnect the inverter from all voltage sources (see inverter manual).
2. Switch off the battery (see battery manual).
3. Switch off the grid-side AC fuse in the meter cabinet.
4. Connect conductor PE for connection to the utility grid to the **PE** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



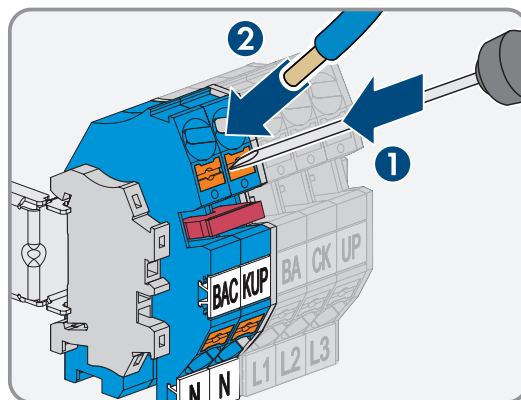
5. Connect conductor N for connection to the utility grid to the **N** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



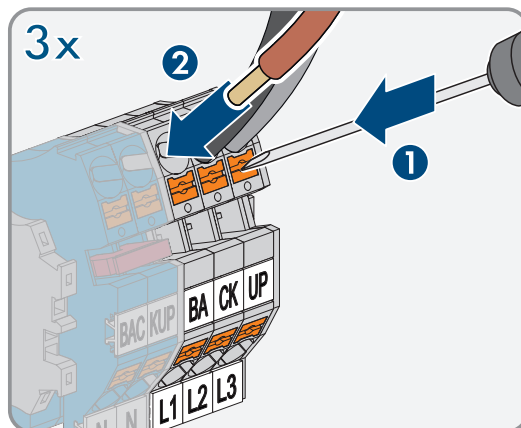
6. Connect conductors L1, L2 and L3 for the connections to the utility grid to the **GRID L1**, **GRID L2** and **GRID L3** terminals on the automatic transfer switching device. To do this, unlock the terminals with a suitable tool (blade width 5.5 mm).



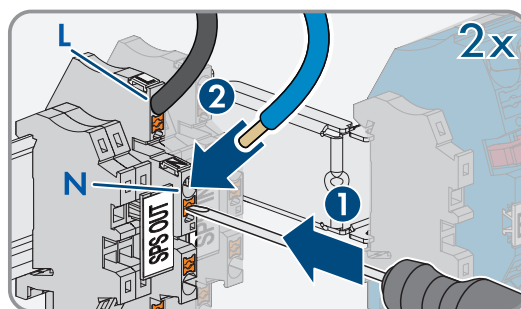
7. Connect conductor N for the connection of the backup loads to the **N** terminal on the automatic transfer switching device. To do this, unlock the terminal with a suitable tool (blade width 5.5 mm).



8. Connect conductors L1, L2 and L3 for the backup loads to the **Backup L1**, **Backup L2** and **Backup L3** terminals on the automatic transfer switching device. To do this, unlock the terminals with a suitable tool (blade width 5.5 mm).

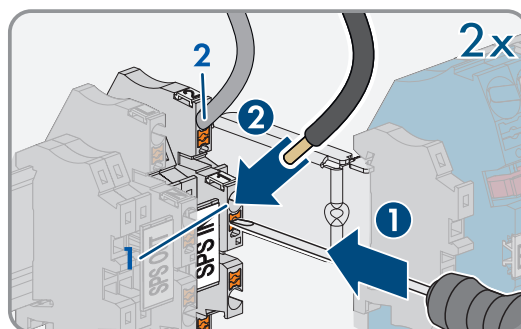


9. Connect the **SPS OUT** AC cable to the **L** and **N** terminals on the automatic transfer switching device as labeled. To do this, unlock the terminal with a suitable tool (blade width 3.5 mm).



10. Connect the **SPS IN** AC cable to the **1** and **2** terminals on the automatic transfer switching device as labeled. To do this, unlock the terminal with a suitable tool (blade width 3.5 mm).

11. Ensure that all conductors are securely in place.



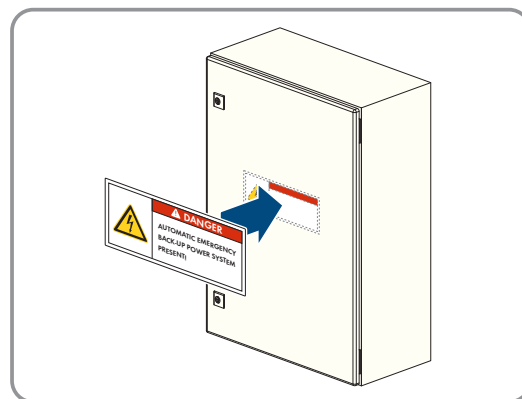
## 7 Placing a notice about backup operation on the meter cabinet

### Additionally required material:

- ☐ Label with notice for attaching to the meter cabinet, indicating backup operation (not included in the scope of delivery). Observe the local regulations when selecting the label.

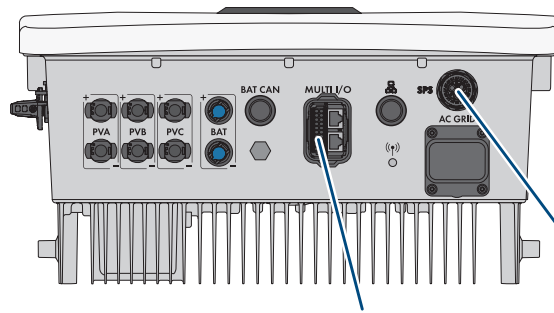
### Procedure:

- Place a notice on the meter cabinet indicating the backup operation of the inverter.

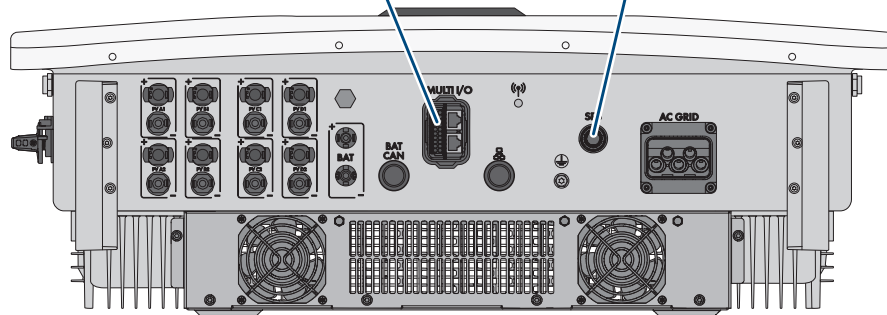


## 8 Connection Area of the Inverter

STPHxx-60



STPHxx-70



| Position | Designation                    |
|----------|--------------------------------|
| A        | Signal cable SPS IN connection |
| B        | Power cable SPS OUT connection |

## 9 Operation

### 9.1 Setting Parameters for Automatic Backup Operation Using SMA 360° App

**Requirement:**

- ☐ The battery is ready for operation.

**Procedure:**

1. Start commissioning with the 360° app and continue up to the setting **Backup operation**.
2. Select **Battery-backup operation**.

|                                  |                                                 |                                                                                     |
|----------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------|
| <input checked="" type="radio"/> | Battery                                         | →                                                                                   |
| <input checked="" type="radio"/> | Energy management                               | →                                                                                   |
| <input type="radio"/>            | Backup operation                                | ↓                                                                                   |
| <input type="radio"/>            | Type of backup operation<br>No backup operation |  |
| <input type="radio"/>            | eCharger                                        | →                                                                                   |
| <input type="radio"/>            | External communication                          | →                                                                                   |

Next

3. Once energy management has been activated and a battery is available, use the slider to set the desired value for battery charge that is to be retained for backup operation.

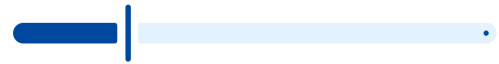
☒ **Battery-backup operation** has been set.

4. Complete commissioning.

### Battery backup for backup operation

Set what proportion of the battery charge is to be retained for backup operation. This battery charge cannot be used in parallel grid operation.

26%



All connected batteries retain 26 % of their charge for the backup operation. In case of a power outage, 10.4 kWh is available.

Apply

## 9.2 Setting Parameters via the Inverter User Interface

### 9.2.1 Changing parameters

The parameters of the inverter are set to certain values by default. You can change the parameters to optimize the performance of the inverter.

This section describes the basic procedure for changing parameters. Always change parameters as described in this section.

#### Requirements:

- ☐ The user interface of the inverter must be open and you must be logged in.
- ☐ Changes to grid-relevant parameters must be approved by the responsible grid operator, and can only be made as an **installer**.

#### Procedure:

1. Choose the product in the focus navigation.
2. Select the menu **Configuration**.
3. Select the menu item **Parameters**.
4. Call up the parameter via the search function or navigate to the parameter.
5. Change the parameter value.
6. Click on [**Save**].

## 9.2.2 Setting parameters for automatic backup operation

### Procedure:

**Automatic backup operation** must be set in the **Operation.BckTyp** parameter (**Configuration of the backup type**) so that the automatic transfer switching device can automatically switch to automatic backup operation in the event of a grid failure.

Ensure that the parameters are set to the default values recommended by SMA Solar Technology AG Changing parameters.

| Parameter                             | Name                                                                                                | Settings                                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operation.BckTyp</b>               | <b>Configuration of the backup type</b>                                                             | <b>Off</b><br><b>Automatic backup operation</b><br><b>Backup Secure Operation</b> | Configure the <b>Automatic backup operation</b> to enable the automatic transfer switching device to switch to automatic backup operation mode automatically in the event of a grid failure.                                                                                                                                                                                                                            |
| <b>Operation.BckSwOnDI</b>            | <b>Minimum duration of grid fault for start of automatic backup operation</b>                       | 1 s to 600 s                                                                      | Time after a grid failure before switching to automatic backup operation.<br>2 s is set by default.                                                                                                                                                                                                                                                                                                                     |
| <b>Operation.BckSwOffDI</b>           | <b>Minimum duration of grid recovery for deactivation of backup operation</b>                       | 1 s to 600 s                                                                      | Time after restoration of the AC grid before switching back to parallel grid operation.<br>300 s is set by default.                                                                                                                                                                                                                                                                                                     |
| <b>Operation.BckCbSwDI</b>            | <b>Interruption of load supply during the transition from automatic backup to feed-in operation</b> | 1 s to 60 s                                                                       | Time during which backup loads are not supplied while switching from automatic backup operation to parallel grid operation.<br>5 s is set by default.                                                                                                                                                                                                                                                                   |
| <b>Operation.ManRstr.IsOn</b>         | <b>Manual restart activated</b>                                                                     | <b>Yes</b><br><b>No</b>                                                           | Select <b>Yes</b> to activate manual restart.                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Operation.ManRstr.ManRstrBckSc</b> | <b>Activation of Manual Restart for reoccurring short-circuit faults in backup operation mode.</b>  | <b>On</b><br><b>Off</b>                                                           | <b>On:</b> The inverter remains in fault mode.<br><b>Off:</b> In the event of a fault during automatic backup operation, the inverter repeatedly attempts to restart until the fault is cleared.<br><b>On</b> is set by default.<br>To fulfill the requirements of VDE-ARE-2510, this parameter must be set to <b>On</b> . The parameter settings must be made differently depending on the country-specific standards. |

| Parameter                    | Name                                                                   | Settings                     | Description                                                                                                                           |
|------------------------------|------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>PlntCtl.Bck.VolChkMod</b> | <b>Voltage monitoring mode at the grid connection point for backup</b> | Single phase<br>All phases   | <b>Single-phase:</b> The inverter performs voltage monitoring on one phase<br><br><b>All phases:</b> The inverter monitors all phases |
| <b>Bck.Vset</b>              | <b>Voltage in backup operation</b>                                     | Enter the value in volts (V) | Voltage during backup operation, depending on the inverter.                                                                           |

### 9.3 Testing automatic backup operation

#### NOTICE

##### Property damage due to short circuit caused by reversed input and output

If the AC cables of the product are reversed for the terminals **BACKUP** and **GRID**, a short circuit may occur resulting in property damages.

- Ensure that the AC cables for BACKUP and GRID are connected correctly.
- If the AC cables are reversed, do not connect the utility grid.
- If the AC cables are reversed, switch off the inverter and the battery. On the inverter user interface set the parameter **Operation.BckTyp (Configuration of the backup type)** to **Off**.

#### Requirements:

- The automatic transfer switching device for automatic backup operation must be connected.
- The inverter must be commissioned.
- **Automatic secure power supply operation** must have been configured during commissioning.
- Parallel grid operation must be configured.
- The battery must be sufficiently charged or there must be sufficient PV energy available.

#### Procedure:

1. To simulate a grid failure, switch off the selective miniature circuit breaker.
2. Wait for the set time in the parameter **Operation.BckSwOnDI (Minimum duration of grid fault for start of automatic backup operation)**.
  - ☑ The automatic transfer switching device switches to automatic backup operation with an audible click. If the loads in the backup circuit are not supplied after the click, check whether the AC cables for the **BACKUP** and **GRID** connections have been swapped over. If this is the case, do not reconnect to the utility grid. Switch off the inverter and battery or set the parameter **Operation.BckTyp (Configuration of the backup type)** to **Off**. Check the installation of the automatic transfer switching device.
  - ☑ When the time set in the **Operation.BckSwOnDI** parameter (**Minimum duration of grid fault for start of automatic backup operation**) has elapsed, all loads in the battery-backup circuit should be supplied with electric current.
3. Switch the selective miniature circuit breaker in the junction box back on.
4. Wait for the set time in the parameter **Operation.BckSwOffDI (Minimum duration of grid recovery for deactivation of backup operation)**.
  - ☑ The automatic transfer switching device switches to parallel grid operation with an audible click.

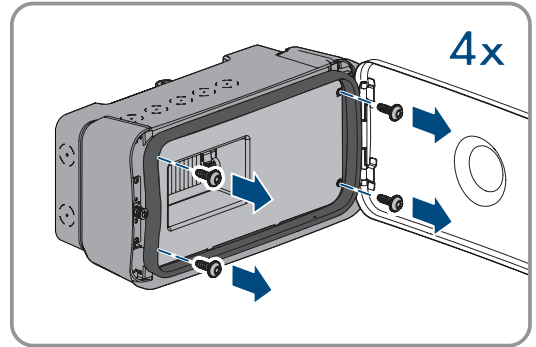
## 10 Troubleshooting

| Behavior                                                                                                                                                                                          | Possible causes and remedy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The residual-current device trips.                                                                                                                                                                | <ul style="list-style-type: none"> <li>• Check the wiring.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| After the automatic transfer switching device has switched to automatic backup operation with an audible click, the loads in the automatic backup circuit are not supplied with electric current. | <ul style="list-style-type: none"> <li>• The AC cables for the <b>BACKUP</b> and <b>GRID</b> connections have been swapped over. Do not reconnect to the utility grid. Switch off the inverter and battery and set the <b>Operation.BckTyp</b> parameter (<b>Configuration of the backup type</b>) to <b>Off</b>. Check the installation of the automatic transfer switching device.</li> <li>• Check whether the contactors have switched. Contact Service if the contactors have switched and the loads in the automatic backup circuit are still not supplied with electric current.</li> <li>• The inverter carries out a cyclical insulation test at least every 24 h during the night. If the system is in automatic backup operation during the insulation test, the backup loads are not supplied for a short time until the insulation test has been completed successfully.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| The automatic transfer switching device does not switch to automatic backup operation in the event of a grid failure. The connected backup loads are not supplied with electric current.          | <ul style="list-style-type: none"> <li>• There is not enough PV energy available or the battery is not sufficiently charged. Check the battery.</li> <li>• The <b>Operation.BckTyp</b> parameter (<b>Configuration of the backup type</b>) is not set to <b>Automatic backup operation</b>. Set the parameter <b>Operation.BckTyp</b> (<b>Configuration of the backup type</b>) to <b>Automatic backup operation</b> Changing parameters.</li> <li>• The time set in the <b>Operation.BckSwOnDI</b> parameter (<b>Minimum duration of grid fault for start of automatic backup operation</b>) has not yet expired. Check the time set in the parameter and adjust if necessary Changing parameters.</li> <li>• The <b>SPS IN</b> and <b>SPS OUT</b> cables are not connected to the inverter correctly or have been swapped over. Check the cable connections of <b>SPS IN</b> and <b>SPS OUT</b>.</li> <li>• All phases will always be monitored. If the utility grid fails on a phase, the automatic transfer switching device does not switch to battery-backup operation.</li> <li>• If battery-backup operation is to be switched to in the event of a single-phase grid failure, the parameter <b>PlntCtrl.Bck.VolChkMod</b> (Voltage monitoring mode at the point of interconnection for Backup) must be set to <b>Single-phase</b>.</li> </ul> |

## 11 Decommissioning the Product

### Procedure with Backup Box

1. Disconnect the inverter from voltage sources (see inverter manual).
2. Switch off the battery (see manual from the battery manufacturer).
3. Disconnect the automatic transfer switching device from voltage sources.
4. Open the lid of the automatic transfer switching device. To do this, press on the left side of the box.
5. Remove the installation cover of the automatic transfer switching device. To do this, loosen the 4 screws (TX20) for fastening the installation cover using a suitable tool.
6. Remove the connected cables from the automatic transfer switching device.
7. Pull the cable out of the enclosure opening holes.
8. Loosen the screw for fastening the automatic transfer switching device on the wall mounting bracket.
9. Remove the automatic transfer switching device from the wall mounting bracket.
10. Use a suitable screwdriver to loosen the screws securing the wall mounting bracket and remove the washers.
11. Remove the wall mounting bracket.



### Procedure with Backup Kit

1. Disconnect the inverter from voltage sources (see inverter manual).
2. Switch off the battery (see battery manual).
3. Open the meter cabinet.
4. Disconnect the meter cabinet from voltage sources. When doing so, comply with the locally applicable safety rules for working in and on electrical installations.
5. Remove the connected cables from the automatic transfer switching device.
6. Remove the bolts from the drill holes in the DIN rails.
7. Remove the automatic transfer switching device from the meter cabinet.

## 12 Disposal

The product must be disposed of in accordance with the locally applicable disposal regulations for waste electrical and electronic equipment.



## 13 Technical Data

### 13.1 BU-STPH-xP63K general data

|                                                                  | BU-STPH-3P63K            | BU-STPH-4P63K            |
|------------------------------------------------------------------|--------------------------|--------------------------|
| Width x height x depth                                           | 249 mm x 170 mm x 110 mm | 249 mm x 250 mm x 110 mm |
| Length x width x height of the packaging                         | 400 mm x 300 mm x 160 mm | 400 mm x 300 mm x 160 mm |
| Weight                                                           | 1.5 kg                   | 2.5 kg                   |
| Degree of protection (according to IEC 60529)                    | IP20                     |                          |
| Operating temperature range                                      | -10 to +30 °C            |                          |
| Storage/transport temperature range                              | -40 to +70 °C            |                          |
| Maximum permissible value for relative humidity (non-condensing) | 4% to 95%                |                          |
| Maximum height above mean sea level                              | 3000 m                   |                          |
| Compatible grid configuration                                    | TN-C, TN-S, TN-C-S, TT   |                          |

### 13.2 BU-STPH-xP63B general data

|                                                                  |                          |                         |
|------------------------------------------------------------------|--------------------------|-------------------------|
| Width x height x depth (with wall mounting bracket)              | 506 mm x 260 mm x 236 mm |                         |
| Width x height x depth (without wall mounting bracket)           | 506 mm x 260 mm x 226 mm |                         |
| Length x width x height of the packaging                         | 600 mm x 400 mm x 330 mm |                         |
| Weight                                                           | BU-STPH-3P63B<br>5.5 kg  | BU-STPH-4P63B<br>6.6 kg |
| Degree of protection (according to IEC 60529)                    | IP65                     |                         |
| Mounting type                                                    | Wall mounting bracket    |                         |
| Operating temperature range                                      | -40 to +45 °C            |                         |
| Storage/transport temperature range                              | -40 to +70 °C            |                         |
| Maximum permissible value for relative humidity (non-condensing) | 0% to 100%               |                         |
| Maximum height above mean sea level                              | 3000 m                   |                         |
| Compatible grid configuration                                    | TN-C, TN-S, TN-C-S, TT   |                         |

### 13.3 Parallel grid operation

|                   |                            |
|-------------------|----------------------------|
| Input voltage     | Three-phase; 230 V / 400 V |
| AC grid frequency | 50Hz                       |

|                                               |      |
|-----------------------------------------------|------|
| Max. continuous current                       | 63 A |
| Recommended preliminary fuse on the grid side | 50 A |
| Self-consumption                              | 0 W  |

## 13.4 Automatic backup

|                                               |                                                                                                            |                                          |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------|
| Compatible with the following inverters       | STPH5-60 / STPH6-60 / STPH8-60 / STPH10-60 /<br>STPH12-60 / STPH15-60<br>STPH20-70 / STPH25-70 / STPH30-70 |                                          |
| Output power / Output apparent power < 100 ms | 150% of rated power                                                                                        |                                          |
| Output power / Output apparent power < 30 s   | 125% of rated power                                                                                        |                                          |
| Nominal AC voltage                            | 230 V                                                                                                      |                                          |
| AC frequency                                  | 50Hz                                                                                                       |                                          |
| Self-consumption                              | BU-STPH-3P63K /BU-<br>STPH-3P63B<br>2 W                                                                    | BU-STPH-4P63K / BU-<br>STPH-4P63B<br>4 W |
| Switching mode                                | automatic                                                                                                  |                                          |

## 13.5 Switchover times (adjustable parameters)

|                                                                                                                                       |                             |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Interruption of load supply during the transition from automatic backup to feed-in operation<br>Parameter: <b>Operation.BckCbSwDI</b> | 1 s to 60 s (default: 5 s)  |
| Minimum duration of grid fault for start of automatic backup operation<br>Parameter: <b>Operation.BckSwOnDI</b>                       | 1 s to 600 s (default: 2 s) |

## 14 EU Declaration of Conformity

within the scope of the EU directives



- Electromagnetic compatibility 2014/30/EU (29.3.2014 L 96/79-106) (EMC)
- Low Voltage Directive 2014/35/EU (29.3.2014 L 96/357-374) (LVD)
- Restriction of the use of certain hazardous substances 2011/65/EU (L 174/88, June 8, 2011) and 2015/863/EU (L 137/10, March 31, 2015) (RoHS)

SMA Solar Technology AG confirms herewith that the products described in this document are in compliance with the fundamental requirements and other relevant provisions of the aforementioned directives. More information on the availability of the entire Declaration of Conformity can be found at <https://www.sma.de/en/ce-ukca>.

## 15 Contact

If you experience any technical problems with our products, please contact the Service. The following data is required in order to provide you with the necessary assistance:

- Device type
- Serial number
- Detailed description of the problem



<https://go.sma.de/service>



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