

Installation Requirements

for the German station concept

for **SUNNY CENTRAL 400MV / 500MV / 630MV / 800MV / 1000MV / 1250MV**



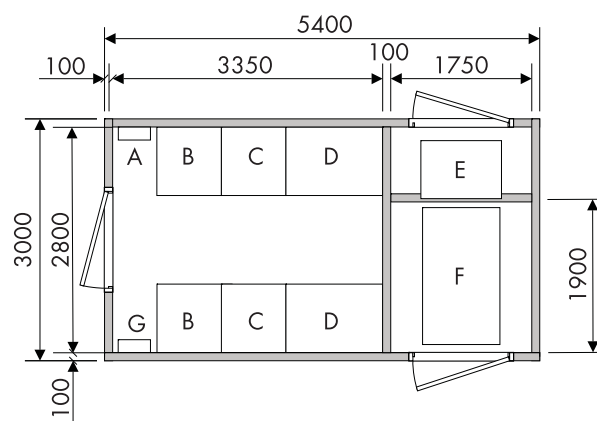
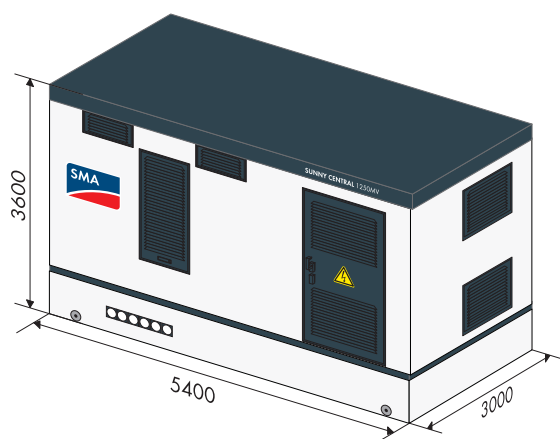
Content

This document describes the dimensions, minimum clearances, cable supply and transport conditions that must be observed to ensure a smooth setup. This document is valid for the following Sunny Central models:

- Sunny Central 400MV
- Sunny Central 500MV
- Sunny Central 630MV
- Sunny Central 800MV
- Sunny Central 1000MV
- Sunny Central 1250MV

1 Mechanical data

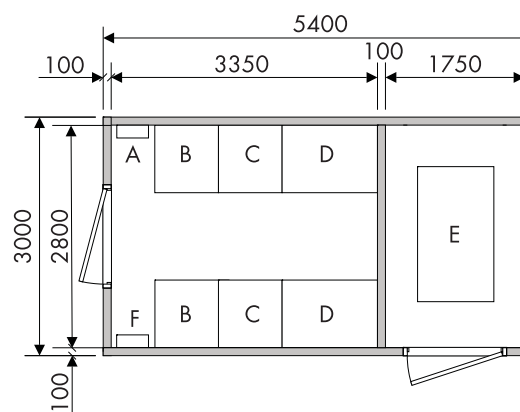
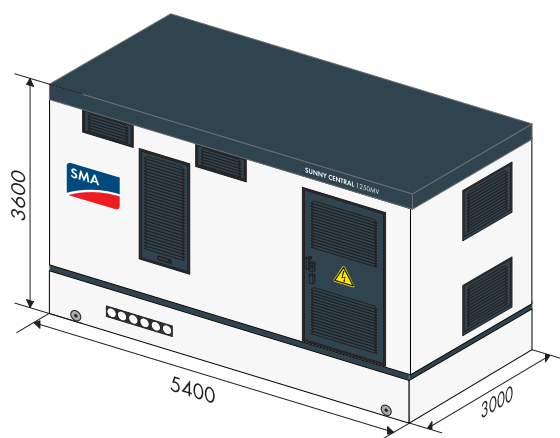
Sunny Central 800MV / 1000MV / 1250MV with medium-voltage switchgear



All figures in mm.

- | | | | |
|---|---------------------------------|---|---------------------------|
| A | COM-B, optional | B | Sunny Central, DC cabinet |
| C | Sunny Central, inverter cabinet | D | Sunny Central, AC cabinet |
| E | Medium-voltage switchgear | F | Transformer |
| G | Station sub-distribution | | |

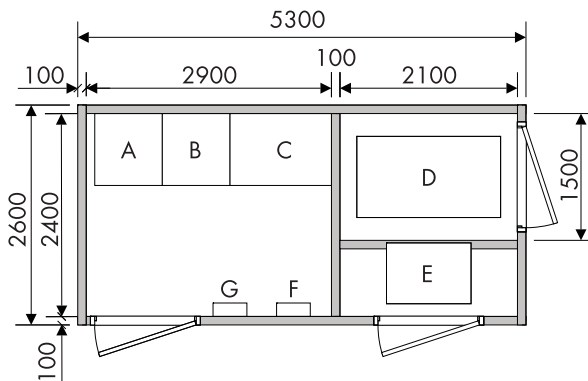
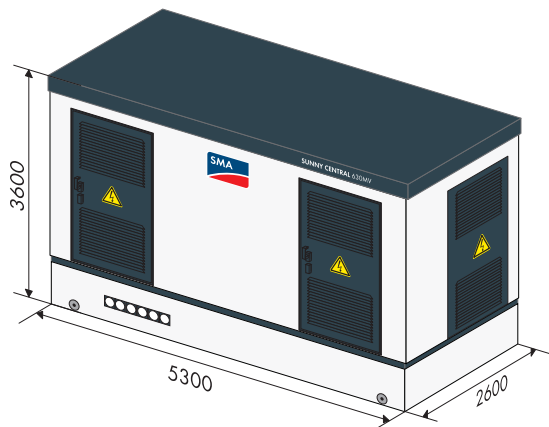
Sunny Central 800MV / 1000MV / 1250MV without medium-voltage switchgear



All figures in mm.

- | | | | |
|---|---------------------------------|---|---------------------------|
| A | COM-B, optional | B | Sunny Central, DC cabinet |
| C | Sunny Central, inverter cabinet | D | Sunny Central, AC cabinet |
| E | Transformer | F | Station sub-distribution |

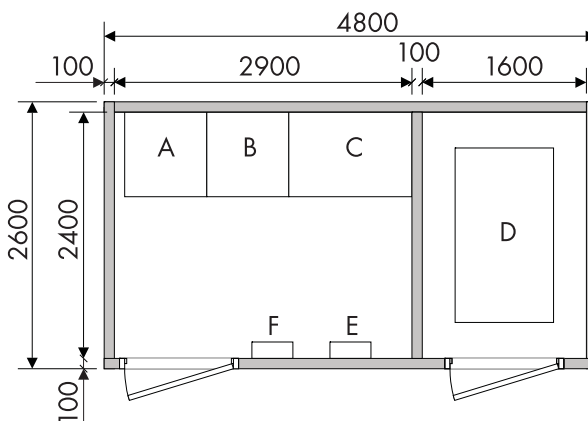
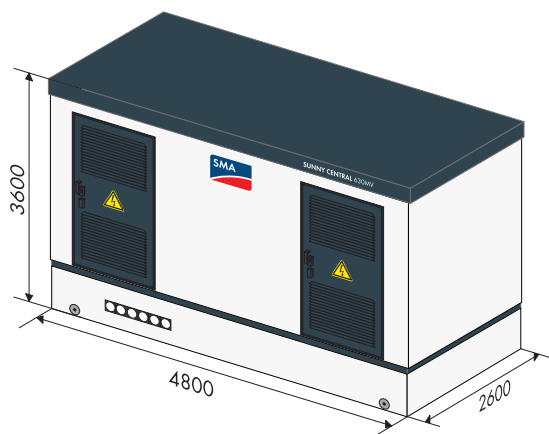
Sunny Central 400MV / 500MV / 630MV with medium-voltage switchgear



All figures in mm.

- | | | | |
|---|---------------------------|---|---------------------------------|
| A | Sunny Central, DC cabinet | B | Sunny Central, inverter cabinet |
| C | Sunny Central, AC cabinet | D | Transformer |
| E | Medium-voltage switchgear | F | Station sub-distribution |
| G | COM-B, optional | | |

Sunny Central 400MV / 500MV / 630MV without medium-voltage switchgear



All figures in mm.

- | | | | |
|---|---------------------------|---|---------------------------------|
| A | Sunny Central, DC cabinet | B | Sunny Central, inverter cabinet |
| C | Sunny Central, AC cabinet | D | Transformer |
| E | Station sub-distribution | F | COM-B, optional |

2 Transport Requirements

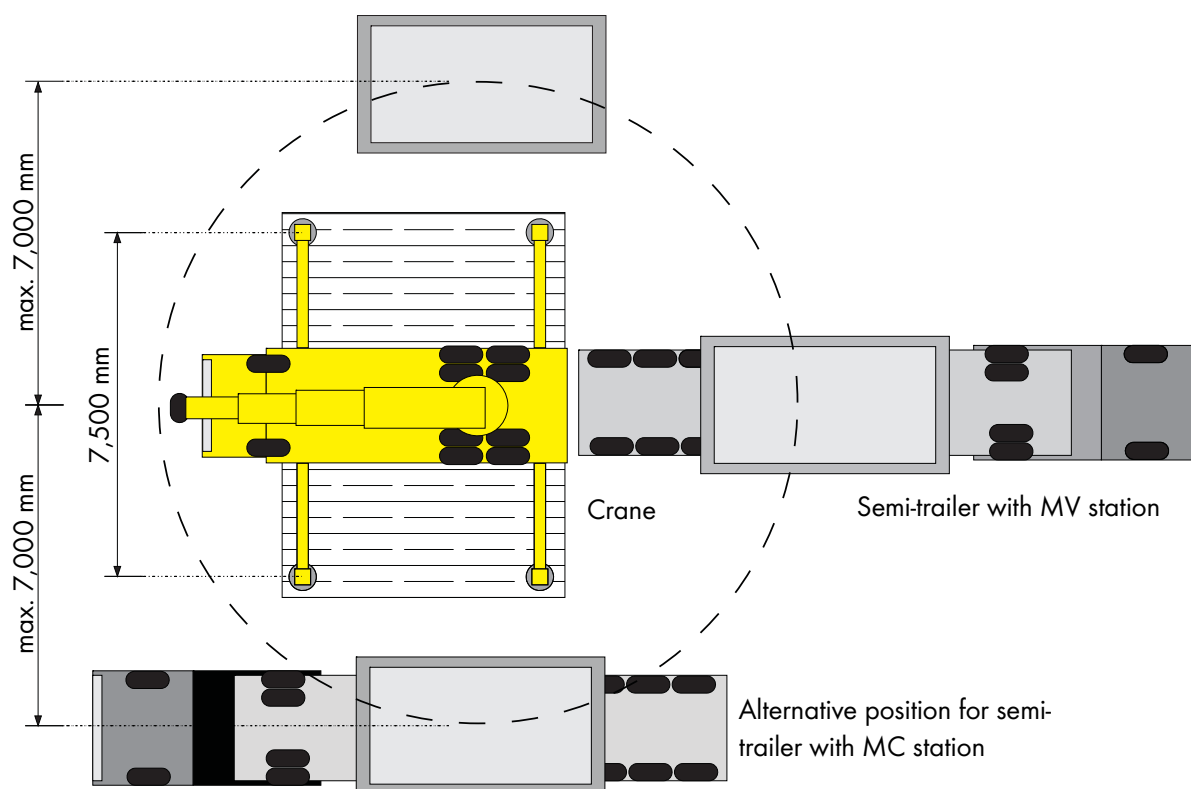
2.1 Freight-forwarding Company

Transport and unloading is coordinated by a freight-forwarding company. Normally, the freight-forwarding company will arrange a day for delivery and unloading with the site management two weeks prior to the planned delivery date.

2.2 Ambient Conditions

The transport route within the PV farm must be designed in such a way that the MV station can be transported by a semi-trailer. The semi-trailer weighs 60 t with a length of 16 m, a width of 3 m, a height of 5 m and a ground clearance of 0.25 m. At its final destination, the surface must be dry, solid and even.

The concrete station is lifted off the semi-trailer and set down on the foundation by a crane. The pivoting radius of the crane is 7 m. The semi-trailer must be positioned as indicated in the following graphic.



If the ambient conditions cannot be fulfilled, it may be necessary to use a larger crane. The final crane size is determined via a visit to the site.

Remove all obstacles prior to delivery such as fences, power lines, trees and such which could hinder access by the semi-trailer and crane.

Delivery and transport using a crane of up to 7 m radius are included in the scope of delivery. Additional costs can be accrued during delivery if

- traffic-control measures such as road blocks, police escorts, etc. are necessary.
- a crane with radius of over 7 m is required.
- an extra traction engine is required for steep inclines.
- excavator mats, etc. are needed.

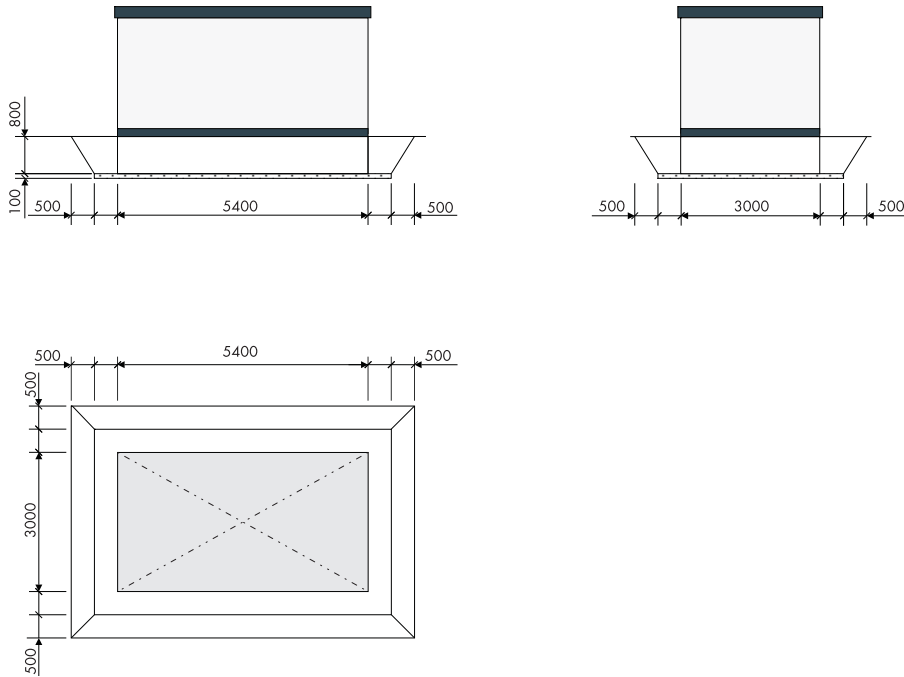
2.3 Foundation

The building pit and foundation are to be set up on site in accordance with the foundation plan. The following conditions must be fulfilled:

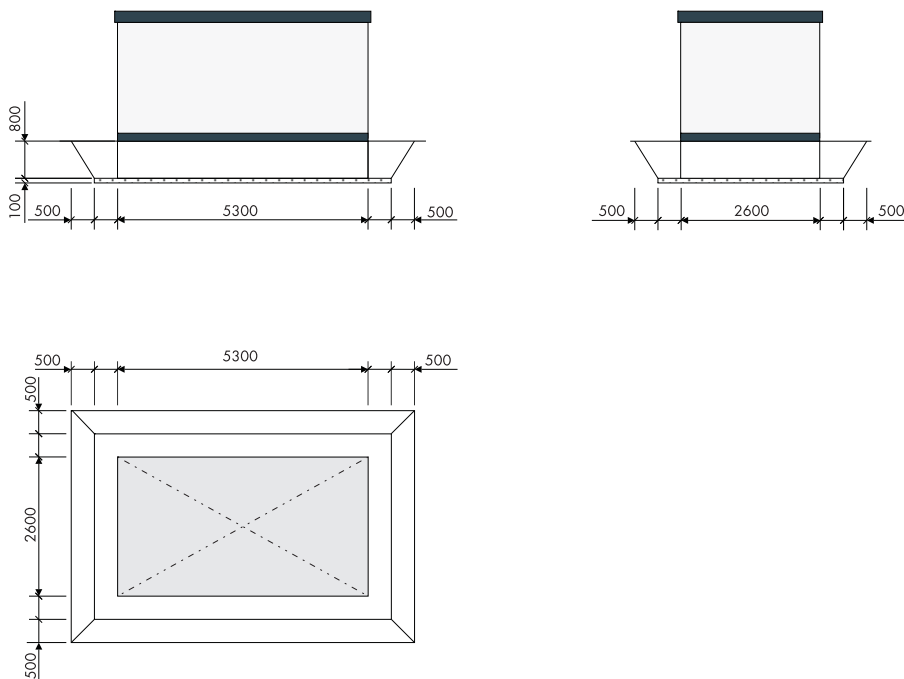
- The digging depth may not exceed 0.8 m.
- Exterior grounding installations are to be executed according to the instructions of the utility operator or distribution grid operator.
- The work area must have a minimum circumference of 0.5 m.
- The corners of the building pit must be marked.
- Place the material dug out in such a way that the semi-trailer and the crane are not hindered during transport.
- The ground must have the following properties:
 - Approx. 100 mm high
 - Compression ratio: 98 %
 - Soil pressure: 150 kN/m²
 - Planning levels deducted

The dimensions of the foundation can be found in the following graphic. All figures in mm.

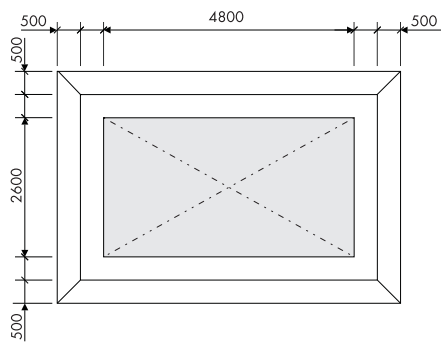
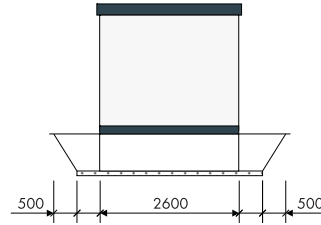
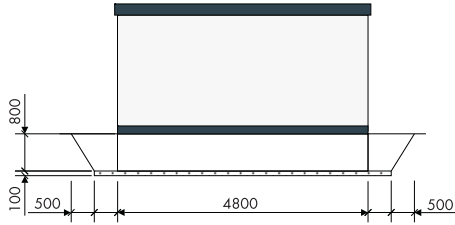
Sunny Central 800MV / 1000MV / 1250MV



Sunny Central 400MV / 500MV / 630MV with medium-voltage switchgear



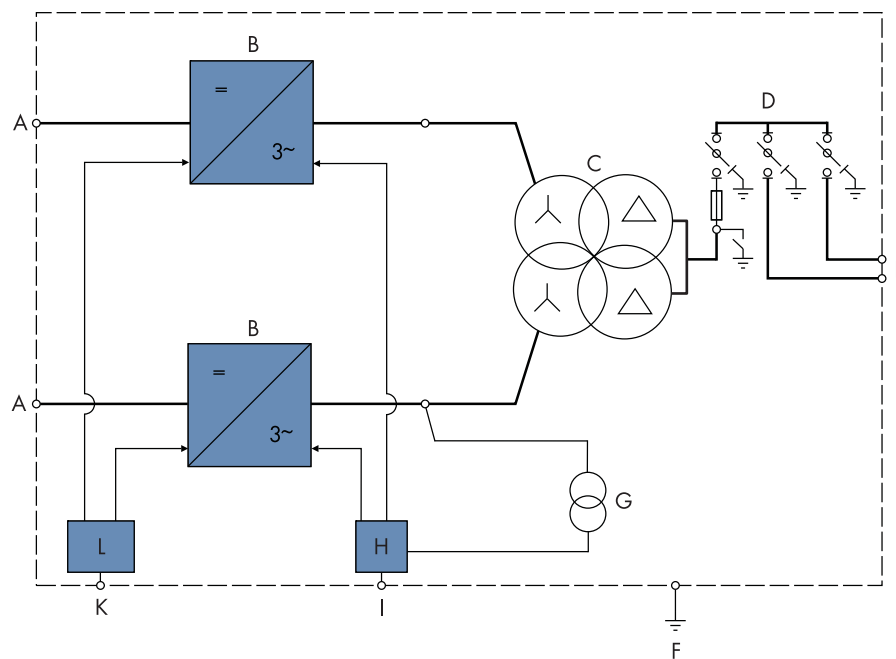
Sunny Central 400MV / 500MV / 630MV without medium-voltage switchgear



3 Electrical Connection

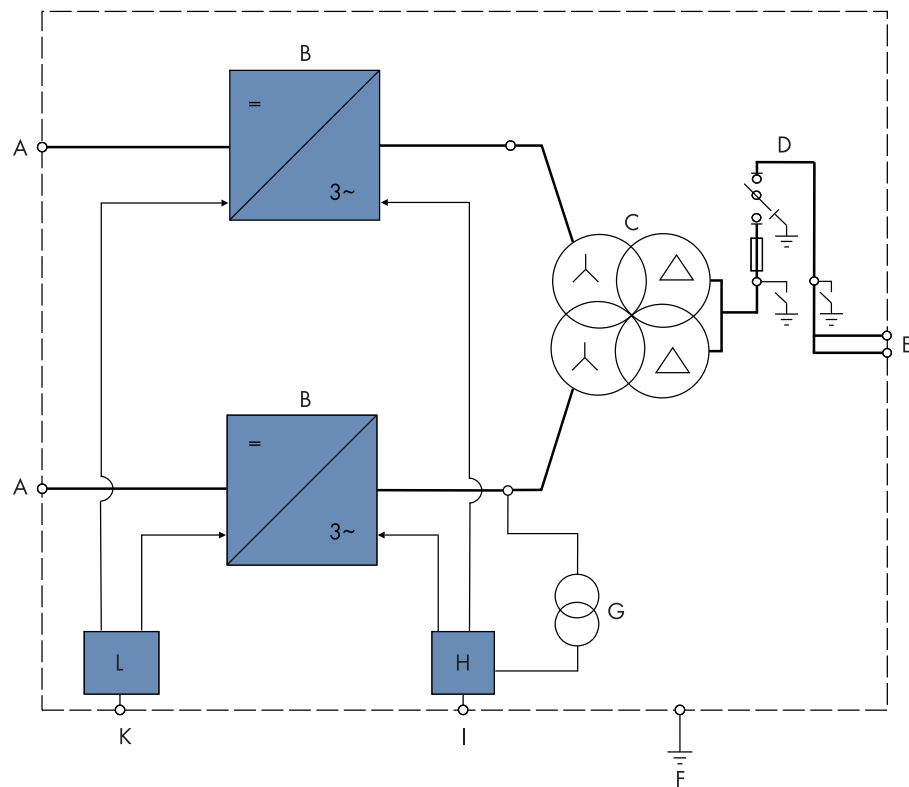
3.1 Block diagram

Sunny Central 800MV / 1000MV / 1250MV with medium-voltage switchgear for ring switching



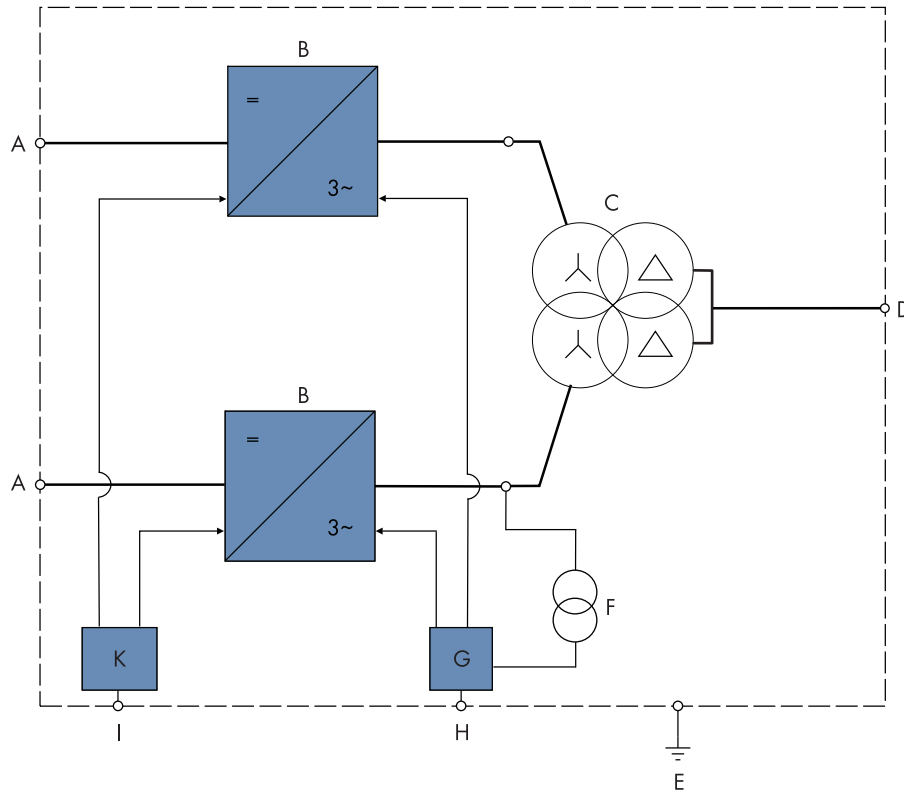
- | | | | |
|---|---|---|---------------------------------|
| A | DC Input | B | Sunny Central |
| C | Transformer Dy11y11 | D | Medium-voltage switchgear C-C-T |
| E | AC Output | F | External Grounding |
| G | Internal power supply transformer, optional | H | Station sub-distribution |
| I | External power supply | K | Communication interface |
| L | COM-B, optional | | |

Sunny Central 800MV / 1000MV / 1250MV with medium-voltage switchgear for cable switching



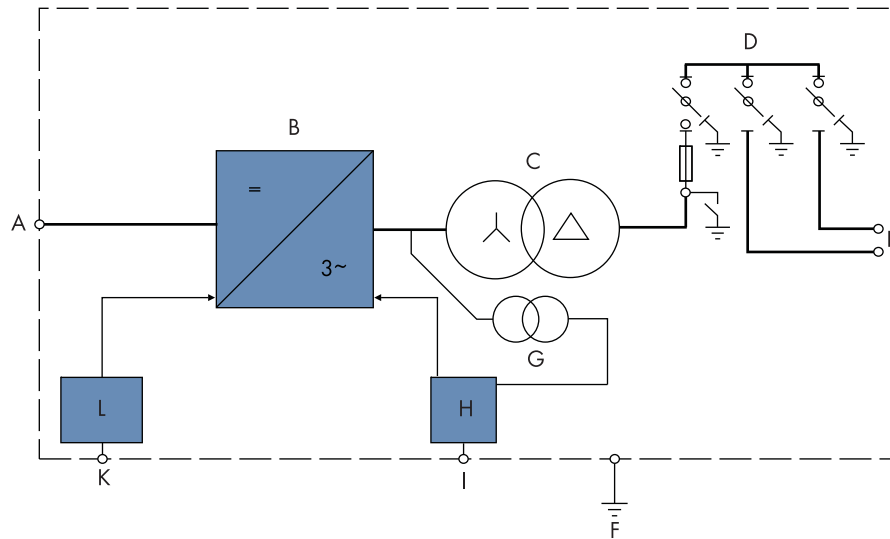
- | | | | |
|---|---|---|-------------------------------|
| A | DC Input | B | Sunny Central |
| C | Transformer Dy11y11 | D | Medium-voltage switchgear R-T |
| E | AC Output | F | External Grounding |
| G | Internal power supply transformer, optional | H | Station sub-distribution |
| I | External power supply | K | Communication interface |
| L | COM-B, optional | | |

Sunny Central 800MV / 1000MV / 1250MV without medium-voltage switchgear



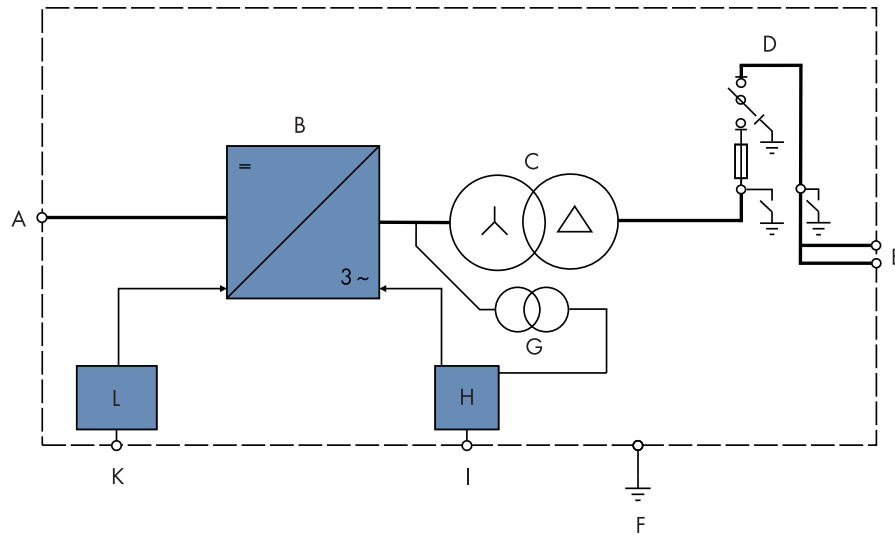
- | | | | |
|---|--------------------------|---|---|
| A | DC Input | B | Sunny Central |
| C | MS Transformer Dy11y11 | D | AC Output |
| E | External Grounding | F | Internal power supply transformer, optional |
| G | Station sub-distribution | H | External power supply |
| I | Communication interface | K | COM-B, optional |

Sunny Central 400MV / 500MV / 630MV with medium-voltage switchgear for ring switching



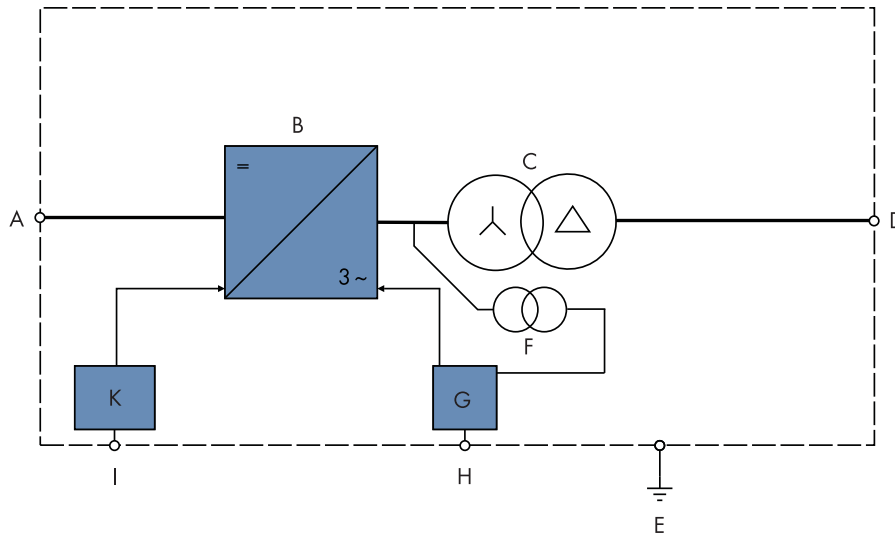
- | | | | |
|---|---|---|---------------------------------|
| A | DC Input | B | Sunny Central |
| C | Transformer Dy11 | D | Medium-voltage switchgear C-C-T |
| E | AC Output | F | External Grounding |
| G | Internal power supply transformer, optional | H | Station sub-distribution |
| I | External power supply | K | Communication interface |
| L | COM-B, optional | | |

Sunny Central 400MV / 500MV / 630MV without medium-voltage switchgear for cable switching



- | | | | |
|---|---|---|-------------------------------|
| A | DC Input | B | Sunny Central |
| C | Transformer Dy11 | D | Medium-voltage switchgear R-T |
| E | AC Output | F | External Grounding |
| G | Internal power supply transformer, optional | H | Station sub-distribution |
| I | External power supply | K | Communication interface |
| L | COM-B, optional | | |

Sunny Central 400MV / 500MV / 630MV without medium-voltage switchgear



- | | | | |
|---|--------------------------|---|---|
| A | DC Input | B | Sunny Central |
| C | Transformer Dy11 | D | AC Output |
| E | External Grounding | F | Internal power supply transformer, optional |
| G | Station sub-distribution | H | External power supply |
| I | Communication interface | K | COM-B, optional |

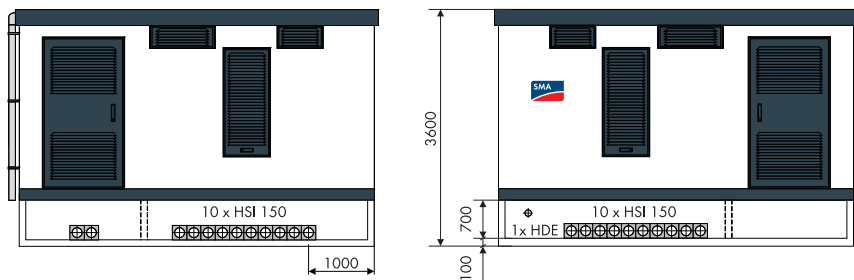
3.2 Cable supply

Cable entries

Cable entries (HSI 150) of the Hauff-Technik GmbH & Co. KG are needed. For cable inlets which are not used we recommend: HSI 150-D cable entries closed.

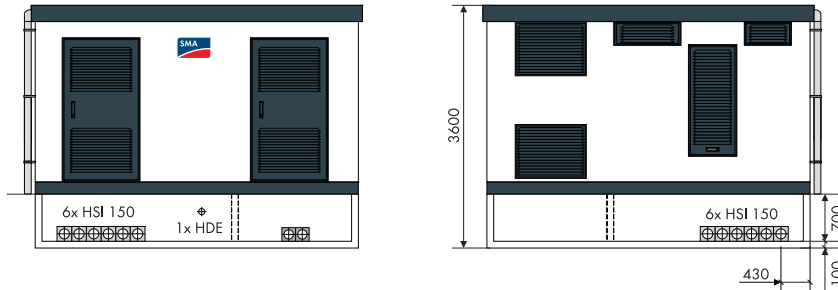
Sunny Central 800MV / 1000MV / 1250MV

All figures in mm.



Sunny Central 400MV / 500MV / 630MV

All figures in mm.



3.3 Cable Cross-sections and Torques

The MV station must be included in the potential equalization. The AC connection is to be executed in compliance with the Installation Guide for the MV switchgear and/or the transformer.

4 Color

| RAL number | Coloring | Coloring used for: |
|------------|--------------------------|----------------------|
| RAL 7024 | Graphite gray / aluminum | Doors, air grills |
| RAL 7024 | Graphite gray | Roof covers, plinths |
| RAL 7035 | Light gray | Exterior walls |
| RAL 9010 | Pure white | Interior walls |