

Installation Requirements

for the Bulgarian station concept

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



Contents

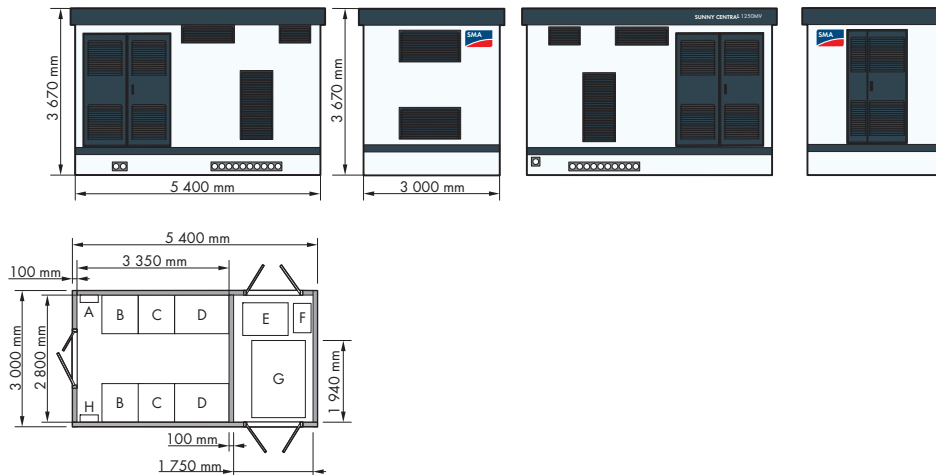
This document describes the dimensions, the minimum clearances and cable routing, and the transport requirements which must be observed to ensure smooth installation. This document is valid for the following Sunny Central models:

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

The design of the stations is country-specific and may deviate from the illustration.

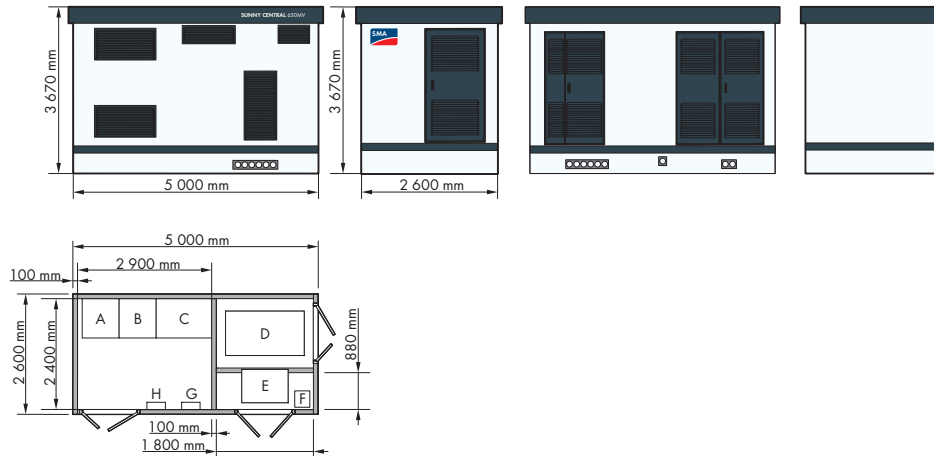
1 Mechanical data

Sunny Central 800MV/1000MV/1250MV



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

Sunny Central 400MV/500MV/630MV



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

2 Transport Requirements

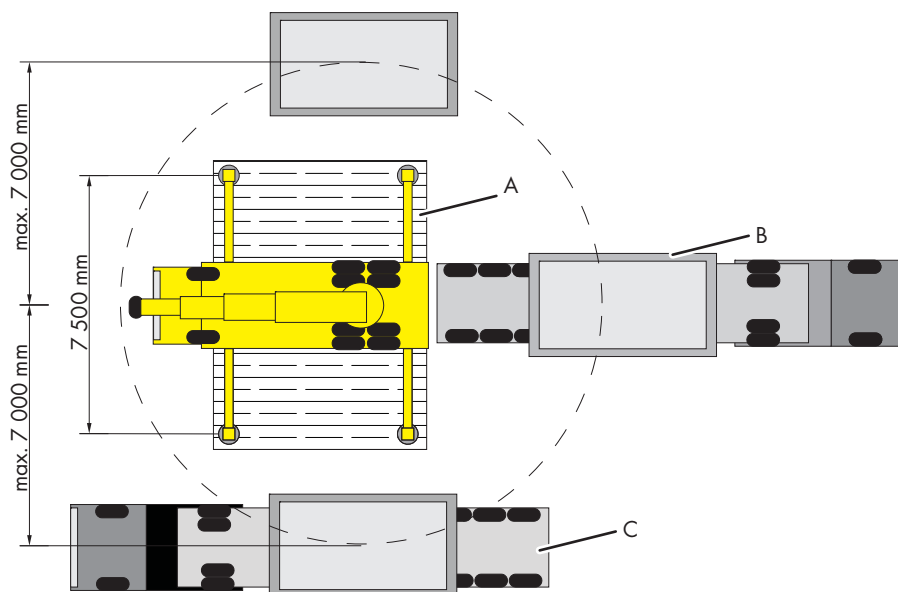
2.1 Freight-Forwarding Company

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 Delivery

Delivery takes place by truck. For this, the following conditions must be fulfilled:

Driveway:	Surface at the installation site:
<ul style="list-style-type: none"> • Firm • Gradient: max. 4 % • Width: min. 3.5 m • Suitable for a truck with the following properties: <ul style="list-style-type: none"> - Weight: at maximum 60 t - Length: at maximum 16 m - Width: max. 3 m - Height: at maximum 5 m - Ground clearance: at least 0.25 m 	<ul style="list-style-type: none"> • Dry • Compacted • Level • Firm



Position	Description
A	Crane
B	Position, semi-trailer
C	Alternative position for semi-trailer

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

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 delivery costs may be incurred in the following cases:

- traffic-control measures such as road blocks, police escorts, etc. become necessary.
- a crane with range greater than 7 m is required.
- an additional traction engine is required for steep inclines.
- excavator mats, etc. are needed.

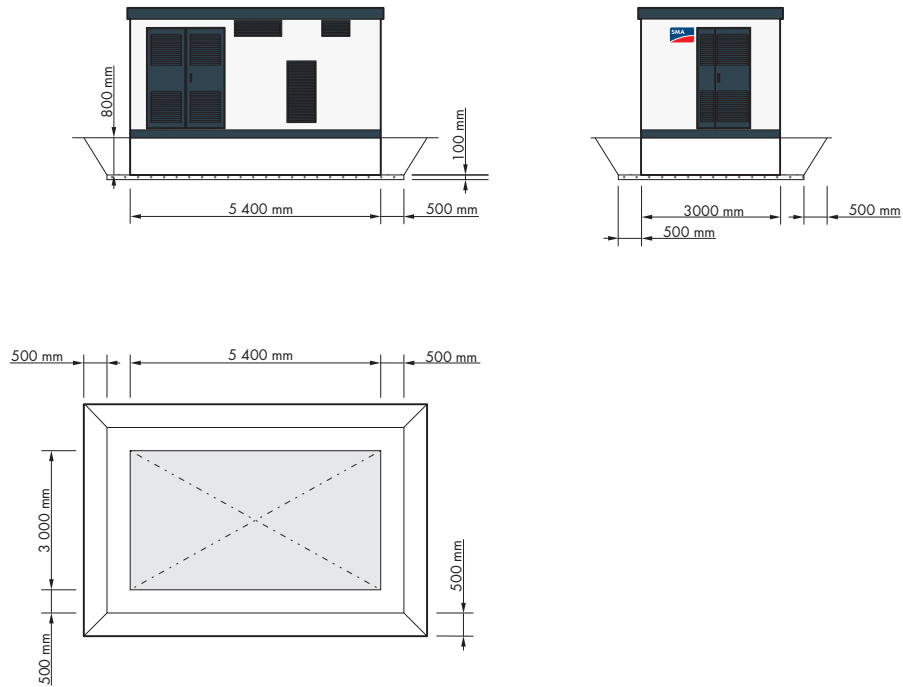
2.3 Foundation

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

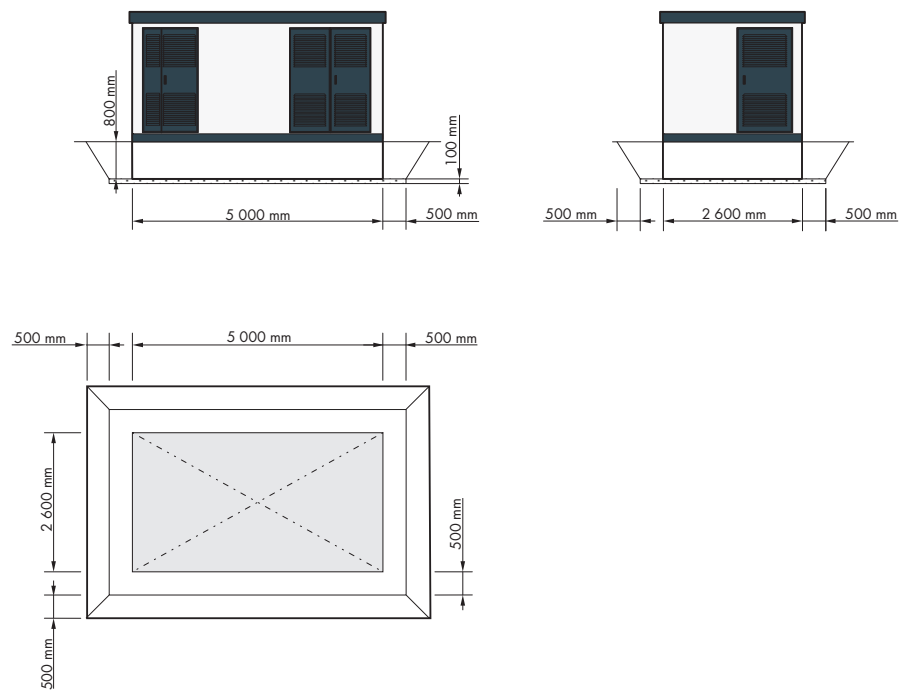
Foundation:	Planum:
<ul style="list-style-type: none"> • Excavation depth of station: max. 0.8 m • Exterior grounding systems according to the instructions of the network operator or distribution grid operator are available. • Working area of at least 0.5 m around the foundation is available • The corners of the excavation pit are clearly marked • The excavated material is dumped in a location which cannot hinder the truck during transport 	<ul style="list-style-type: none"> • Material: gravel bed • Height: approx. 100 mm • Relative compaction: 98 % • Soil pressure: 150 kN/m² • Drawn off level

The dimensions of the foundation can be found in the following diagrams.

Sunny Central 800MV/1000MV/1250MV

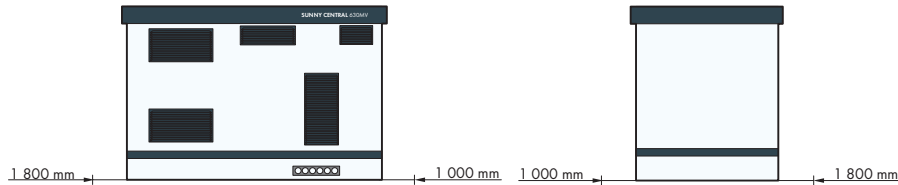


Sunny Central 400MV/500MV/630MV



2.4 Minimum Clearances

Keep a minimum clearance of at least 1 800 mm in front of the doors of the MV Station. Keep a clearance of at least 1 000 mm at the sides without doors.



Ensure a safety clearance of 5 000 mm to objects which are inflammable or could potentially cause fires. In order to disconnect the MV stations in case of failures, observe a safety clearance of 10 000 mm between the MV stations and the DC sub distributions.

Also observe the local fire safety requirements regarding the minimum clearances.

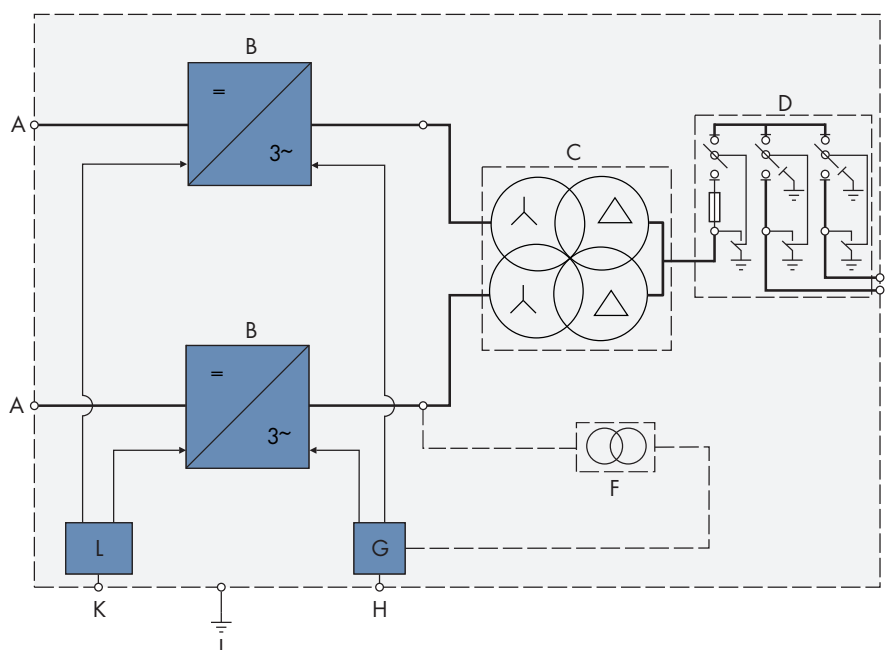
2.5 Drainage

A drainage system must be provided on site to protect the MV station from water penetration.

3 Electrical Connection

3.1 Block circuit diagram

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



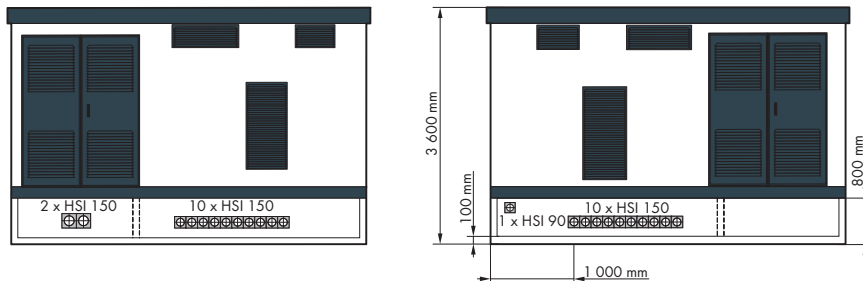
- | | | | |
|---|--------------------------|---|---|
| A | DC Input | B | Sunny Central |
| C | Transformer Dy11y11 | D | Medium-voltage switchgear C-C-T |
| E | AC Output | F | Transformer for internal power supply, optional |
| G | Station sub-distribution | H | External voltage supply |
| I | External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

3.2 Cable Entry

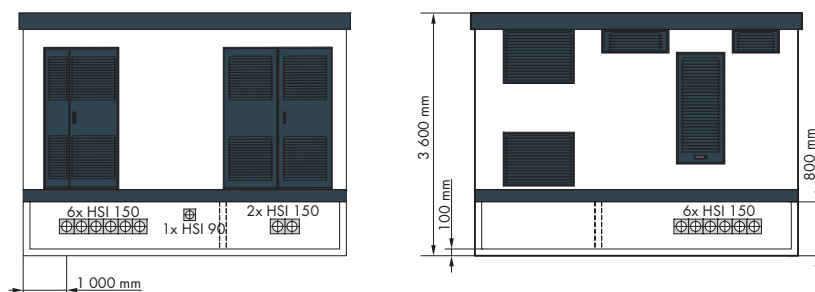
Cable Routing:

The cable entries of the stations have been prepared for HSI 150 Hauff system lids. Corresponding inserts are not included in delivery. For unused cable entries, we recommend using HSI 150-D system lids (closed).

Sunny Central 800MV/1000MV/1250MV



Sunny Central 400MV/500MV/630MV



3.3 Cable cross-sections

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

3.4 Equipotential Bonding

The MV station must be included in equipotential bonding.

4 Color

RAL 7024	Graphite gray/aluminum	Doors, ventilation grids
RAL 7024	Graphite gray	Roof covers, plinths
RAL 7035	Light gray	Exterior walls
RAL 9010	Pure white	Interior walls