



Ground mounted solar power plant

Features of the plant:

For the implementation of this project were used mono-crystalline modules type Sinski PV SPV180M-24 with nominal power of 180 Wp and voltage of VMPP = 36V. The power plant consists of 540 modules, arranged on 10 separate ground static structures with inclination of 30°.

The generated electricity is fed to 9 inverters and to each inverter are connected 5 strings, consisting of 12 serially-connected modules.

Both end modules of each string with DC cable RADOX Solarcable single core 1x4mm² type are connected to the DC switchboard input. At the inverter input is installed a DC switchboard, fitted with RT 28-32 fuses – one per each pole.

For this project were selected SMA Technologies inverters, Sunny Mini Central SMA SMC 10,000 TL model.

The inverters are designed, so they can work only in parallel with the power supply network. In case of removing or changing the parameters outside the limits of the AC network, to which the inverter output is connected, it will stop working automatically and avoids work in autonomous mode. After a set period of time there will be another attempt for switching on, but if the deviation is critical for the inverter operation, then the switching off remains until the elimination of the cause. The independent network parameter control system „SMA grid guard“ takes care about all this.

The inverters are grouped into three groups by three and each is connected via CBT-c 2x16mm² cable to a properly sized circuit breaker into the relevant intermediate switchboard. Each intermediate switchboard is connected using a CBT-c 4x16mm² cable to a circuit breaker in the main switchboard. In the switchboard is installed VIP electrometer equipped with current transformers TT 150/5A and EK-RSTB controller.

To achieve the necessary parameters of the earthing system are used 15 earthing devices, combined in a common circuit. The earthing circuit consists of a galvanized 40/4 mm steel bar, dug in the ground.

The lightning shaft with height of 6.50 m and early streamer emission lightning conductor SCHIRTEC – A E.S.E. are installed at a safe distance from the solar modules to avoid shading.

The Sunny Web Box monitoring and control system performs data recording from the system in energy independent memory and send it over Internet to the central server of SMA - Germany.

Power Plant Specification

Size:	97.20 DC
Commissioned:	May 2012
Type:	Ground-mounted
Site Area:	4177 m ²
Output:	90 kW
CO ₂ Displacement:	~80.7 metric tons per year
Module Surface Area:	689.4 m ²
Modules Used:	Type: SPV 180M-24
	Quantity: 540
Angles:	Mounting Tilt: 30°
	Azimuth: 0°



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