



Roof mounted solar power plant

Features of the plant:

The PV power plant is built of poly-crystalline modules type Schott Protect Poly 190 with nominal power 190 Wp and module voltage of VMPP = 23.4V. The power plant consists of 156 modules, forming one plate with inclination of 28.5° to the horizon, located on the roof of an existing building.

The generated electricity is fed to 2 inverters. To inverters 1 and 2 are connected 4 strings to MPP trackers. Both end modules of each string with DC core 1x4mm² type are connected to the inverter input.

For the current project are selected SMA Technologies inverters, model Sunny Tripower 12 000 TL. These are 3-phase inverters with two MPP trackers - 4 inputs for MPP tracker A and 1 for MPP tracker B. They have IP65 level of protection against weather conditions, independent control system of the network parameters „SMA grid guard“ and integrated output power balance system “SMA Power balancer”.

The inverters are 2, installed on the eastern wall of the building, and each is connected via a CBT-c 4x10 mm² cable to a properly sized circuit breaker into the main switchboard.

The earthing system on the roof structure consists of Al wire with diameter of Ø8mm, installed on the aluminum structure of the panels using mounting brackets providing sufficient low transition resistance of the connection. Each earthing device consists of a set of three galvanized steel poles with dimensions of Ø20mm and L=1500mm and revision-control box. The connection between the revision-control box and the earthing devices is done with galvanized steel bar 40/4 mm.

The lightning protection system consists of an early streamer emission lightning conductor E.S.E.S-A1p, with advance time of 60 µs and lightning shaft height of 3 m above the highest point on the protected site.

The central monitoring and control device is Sunny Web Box. The device power is implemented via UPS, located in a main switchboard. The monitoring and control devices are installed in a low voltage switchboard.

Power Plant Specification

Size:	29,64 DC
Commissioned:	2012
Type:	Roof- mounted
Site Area:	600 m ²
Output:	24 kW
CO ₂ Displacement:	~ metric tons per year
Module Surface Area:	209 m ²
Modules Used:	Type: Protect Poly 190
	Quantity: 156
Angles:	Mounting Tilt: 28.5°
	Azimuth: 0°



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