



Solar Installation

Tatale Water Pumping

Tatale / Ghana, February, 2019



Installation Description

The 28 modules are connected all in series for form one string. The output power of the modules is connected to the Grundfos Solar Pump Controller which is powering directly the solar water pump.

Since we were using a second hand solar water pump which was used about 20 years in South America, we had to measure the power performance of the solar modules. Out of our testing we realized, that the modules have 73% out of the original power.

The second challenge we encountered was the "Harmatan" season, which has typically a lot of sand from the desert in the air. Therefore we had only a maximum solar irradiation at day time of about $800\text{W}/\text{m}^2$.

Both effects together gave us a power output of the modules from only 58% of the rated power under Standard Test Conditions. This power was not enough to pump water from a 70m deep bore hole.

Now we have to decide:

- Either to use more or new solar modules, to get really the needed 1500Wp.
- We will use the pump at a location where the water level is not so low and the remaining output power of the modules is sufficient to pump the water.

Facts

Location

Tatale in the Northern Region of Ghana, about three hours drive in the eastern direction from the Regional Capital Tamale, close to the border to Togo.

Installation Date

January 2019

End Users

The community of the Salesians of Don Bosco in Tatale Catholic Church

Technical Data

- 28 Solar modules with 55Wp Solar Water Pump
- Grundfos Solar Pump Controller, Solartronic SA 1500

