

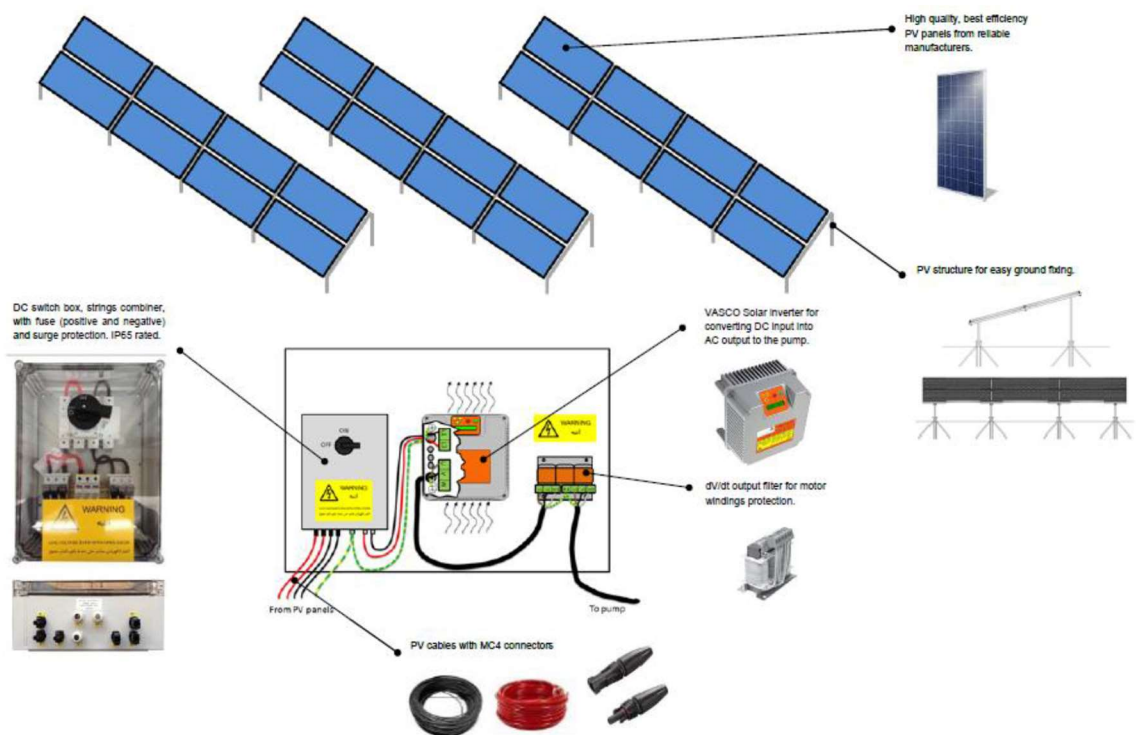
Solar energy for water pumping with TDS Hybrid Inverter

Description of the system

Technical configuration for a system to be used for drilling water from borehole and/or basins:

- The core of the solution is a hybrid inverter with a built in electric panel, capable to manage and combine in a dynamic way the energy produced by the solar panels with the energy coming from another source like grid or generator. This feature guarantees a complete optimization and a more efficient supply of the energy needed by the pump, expanding the time range of pump usage, independently of the weather conditions. (See the related technical datasheet of the inverter).
- TDS Hybrid is capable to work with both power sources, allocating in a dynamical way the energy coming from the different sources. That allows to use solar energy for more hours than with a standard inverter, as in hybrid mode the solar energy can be used also in the morning and afternoon hours when the sun irradiance is not at the peak level.
- The configuration, except the water pump, is composed of an inverter with integrated electrical panel, solar panels with related ground mounting structure, cables and other accessories like connectors, filters, string switch box.

Scheme of the configuration

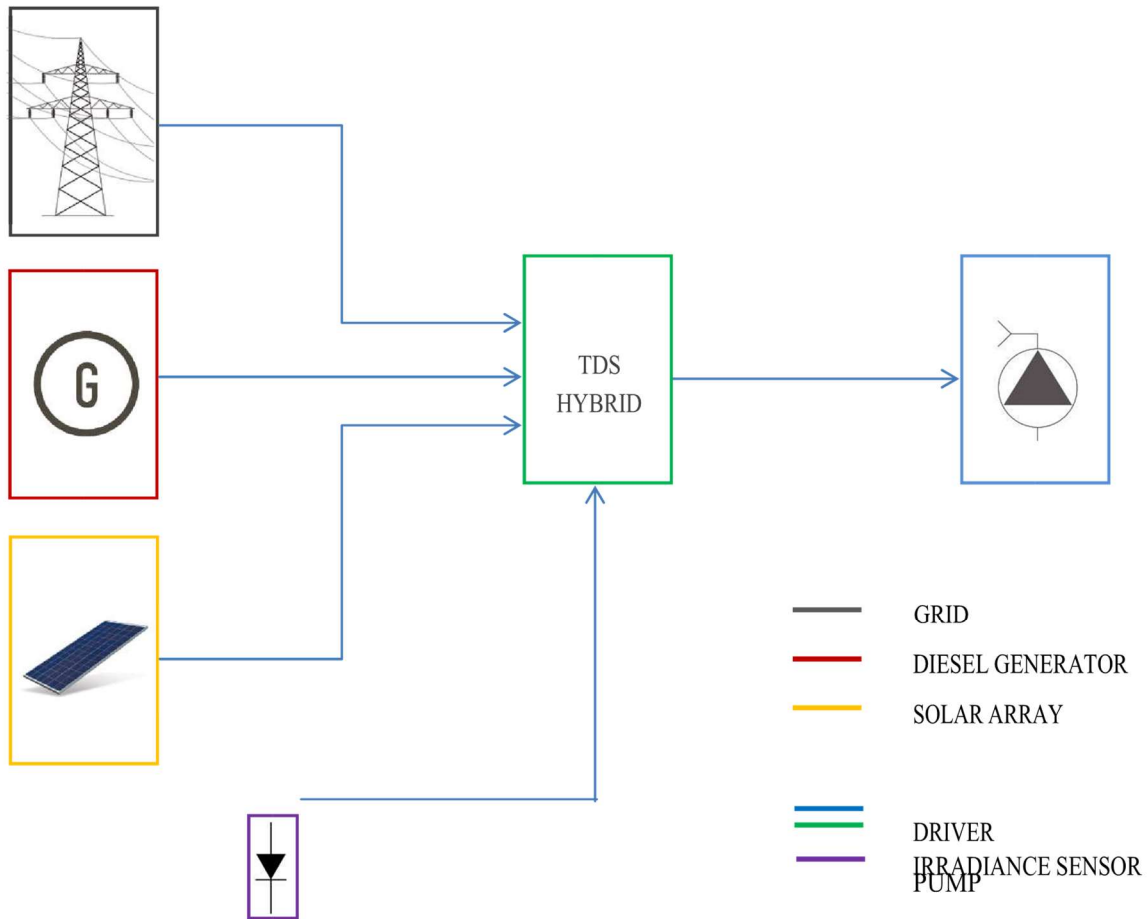


Positioning of the TDS Hybrid Inverter

In case the installation will be on a site where the outside temperature could be higher than 40° it will be highly recommended to install the TDS Hybrid Inverter inside a protected structure that can be like the one in the below picture or better inside a small prefab building.



Block scheme of the installation



Grid

The system can work with energy coming from traditional sources as the public grid. The parameters of grid's power are 3 x 380V, 50Hz. If needed a 60Hz can be setup easily through the driver.

Diesel generator

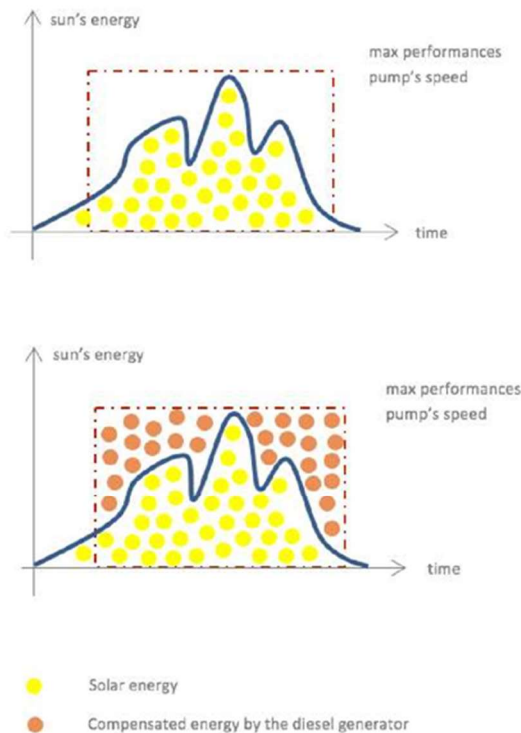
Can be applied as "system backup" in case of fault of the grid or to run the pump during the night in case of missing of the grid.

The TDS driver can provide automatically to the starting of the generator if it has the electrical starter.

TDS Hybrid Driver / Inverter

- The inverter is installed in a control cabinet IP54 with ventilation or ventilation openings complete with filter in class A2 (for connecting three-phase).
- Keypad user from the front panel to start stop and parameter display and inverter status.
- Custom programming for photovoltaic application and / or hybrid pump control
- The power of the engine is expected to 400Vac
- The inverter power supply is expected in Q4 400Vac 50/60 Hz or 550 / 705Vdc
- The fan is intended for environments where moisture and temperature compatible with the coordinates of the manufacturer.
- Mains chokes or series with the motor for distances inverter / pump considerable (> 50m)
- Management, line break on AC side (disconnectors, circuit breakers, fuses, breakers, other options on request)
- Management, interrupt the DC side (disconnectors, circuit breakers, fuses, breakers, other options on request).

Mode of operation of the TDS Hybrid Inverter



TDS Hybrid is a pumping water system powered from photovoltaic panels or with hybrid power (photovoltaic and power grid at the same time).

You can feed the system as hybrid, that is, from the power grid and photovoltaic simultaneously, integrating momentary power shortages on photovoltaics for weather reasons or during the night.

In this mode, the system can not in any way enter power into the grid.