



Finolex Academy of Management & Technology, Ratnagiri

Department of Electrical Engineering

Academic Year 2023-24

## Field Visit to Grundfos India's Innovative Solar Water Solutions for Rural Communities

### Introduction:

Electrical Engineering Department Held a field visit to Grundfos solar water solutions on 02 February 2024. This innovative system is designed to harness the power of the sun to provide reliable and sustainable water supply solutions. These solutions integrate advanced solar technology with Grundfos's expertise in pumping systems to offer efficient and environmentally friendly water solutions for various applications.

The Grundfos solar water solutions typically consist of solar panels, solar-powered pumps, control units, and storage tanks, all engineered to work seamlessly together to deliver a consistent water supply. The solar panels capture sunlight and convert it into electrical energy, which powers the pump to lift water from underground sources such as wells or boreholes. The control units optimize the system's performance, ensuring efficient operation even in varying weather conditions.

Grundfos solar water solutions typically include several key components and devices to efficiently harness solar energy for water pumping and distribution. Some of these components and devices may include:

- 1. Solar Panels:** Photovoltaic (PV) panels are used to capture sunlight and convert it into electrical energy. These panels are typically mounted on rooftops, ground-mounted frames, or integrated into solar arrays.
- 2. Solar-Powered Pump:** Grundfos offers a range of solar-powered pumps designed specifically for water-pumping applications. These pumps are powered directly by the electricity generated from solar panels, eliminating the need for grid electricity or diesel generators.
- 3. Control Unit:** A control unit or controller is used to regulate the operation of the solar water system. It monitors various parameters such as solar irradiation, water demand, and system pressure, and adjusts the pump speed or output accordingly to optimize performance and efficiency.
- 4. Storage Tanks:** Water storage tanks are used to store water pumped by the solar system for later use. Depending on the application, these tanks may range from small, domestic-sized tanks to large-scale storage reservoirs for community water supply projects.
- 5. Pumping System Accessories:** Various accessories such as valves, pipes, fittings, and sensors are essential components of the pumping system. These accessories ensure proper functioning, distribution, and control of water flow within the system.
- 6. Backup Systems (Optional):** In some cases, backup systems such as battery storage or diesel generators may be integrated into the solar water solution to provide power during periods of low sunlight or extended periods of high water demand.



Finolex Academy of Management & Technology, Ratnagiri

Department of Electrical Engineering

Academic Year 2023-24

**Monitoring and Control Software:** Grundfos may offer specialized software or monitoring platforms that enable remote monitoring, control, and optimization of the solar water system. These software solutions provide real-time data on system performance, energy production, and water usage, allowing for proactive maintenance and troubleshooting.

### **Acknowledgements:**

The organisers extend their special thanks to Dr Mane J. J., Head of the Electrical Department at FAMT, for his support and guidance in making the event a reality. Dr. Jayant Mane's leadership and encouragement were instrumental in the success of the workshop.

### **Conclusion:**

Grundfos solar water solutions represent a pioneering approach to addressing the global challenges of water scarcity, energy sustainability, and rural development. By harnessing the abundant energy of the sun, Grundfos has developed innovative systems that provide reliable and environmentally friendly water supply solutions for a wide range of applications.

### **Some Glimpse of the Event :**



Fig1: Demo plant view of solar water solutions for rural communities



Fig 2: BE Electrical students attend the demo plant visit



Fig 3: Resource person giving detailed demo information about solar pump



Fig 4: Batchwise students visited to solar pump demonstration