

64. Title: A solar irrigation pump without need of a mechanical position sensor

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Key Words: Irrigation pump, Fan, SRM, Solar

Domain: Renewable Energy

Summary: A switched reluctance motor (SRM) drive is developed for a solar irrigation pump. The SRM drive uses an algorithm for power management and a mid-point converter. The drive eliminates a mechanical position sensor and corresponding hardware circuitry. This reduces the cost of manufacturing and maintenance of SRM drive. The mid-point converter acts as a highly fault-tolerant controller for SRM drive. It provides robust working and the pump operation is unaffected in case of phase faults.

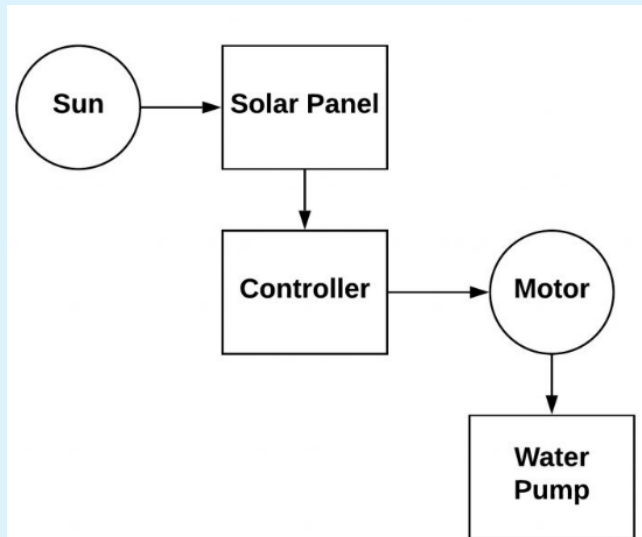


Diagram: schematic of a solar irrigation pump

Advantages:

- » Reduced dependency on the costly grid as compared to existing ones
- » Increases the reliability of the drive
- » Provides uninterrupted operation
- » Avoids usage of a mechanical position sensor

Applications: Suitable for low and medium power applications like fans, irrigation pump

Scale of Development: A prototype is developed and tested at laboratory level.

Technology Readiness Level: 4

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