yMP55

MICROHYDEL POWER GENERATION SYSTEM FOR BUILDING ROOF RAIN WATER FLOW TO POWER AC/DC LOADS WITH BATTERY REVERSE CHARGE PROTECTION

Technical Specifications:

Title of the project	:	Microhydel power generation system for building roof rain water flow to power ac/dc loads with battery reverse charge protection
Domain	:	Renewable Energy Management, Energy System
Power Supply	:	+5V, 500mA Regulated Power Supply
Rechargeable Battery	:	NiMH Rechargeable battery 3.6V, 600mAh
Source	:	Hand cranked dynamo
DC geared Motor	:	1
Applications	:	Industrial applications, batteries, vehicles, Mining
Developed By	:	M/S Wine Yard Technologies
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ABSTRACT:

Energy is a major input for overall socio-economic development of any society. Hydel energy is the fastest growing renewable energy. From Decades man has been trying to convert Hydel power to mechanical &, more recently, electric power. Hydel technology has improved significantly over the past two decades, and Hydel energy has become increasingly competitive with other power generation options. Hydroelectricity is the term referring to electricity generated by hydropower; the production of electrical power through the use of the gravitational force of falling or flowing water. It is the most widely used form of renewable energy.

A key challenge for hydel energy is that electricity production depends on the flow of water from the zenith positions. When water falls with certain velocity on the vanes of the micro hydel blade set which drives the dc geared motor to rotate in either clockwise or anticlockwise direction. The power in the hydel can be computed by using the concepts of kinetics. It works on the principle of converting kinetic energy of hydel blade set to mechanical energy. The power generated by this method is used frequently in all hilly areas and heavy rain fall areas.

This project is designed by using a micro hydel blade arrangement which is connected to the shaft of the dc geared motor such that its output is given to the Reverse polarity preventer cum polarity corrector. Depending upon the movement of the hydel blade (clock wise / anti clock wise) the polarity can be corrected automatically which is given as an input supply to the 12V 1.3 Amp-Hour DC rechargeable batteries. The o/p of this lead acid battery is given as input to the inverter which drives the AC loads.

The battery is connected to the inverter. This inverter is used to convert the 12 Volt D.C to the 230 Volt A.C. This 230 Volt A.C voltage is used to activate the loads. Here we are also using Conventional Battery Charger Unit to recharge the battery.

Block Diagram:

Micro-hydel blade set

Geared DC motor

Reverse polarity preventer cum polarity corrector

AC ripple neutralizer

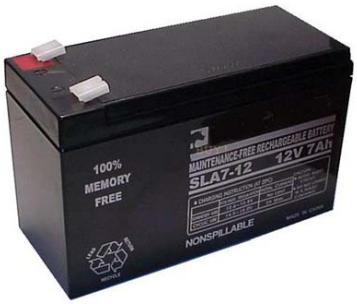
Unidirectional Current Controller

Step down T/F → Bridge Rectifier → Filter Circuit → Regulator

Conventional Battery Charger Unit

Unidirectional Current Controller

Rechargeable Battery



Inverter

ON/ OFF control switch

AC 230V Load

Block Diagram: Microhydel power generation system from building roof rain water flow to power AC / DC loads with battery reverse charge protection