

"State of the art technology for grid integration of solar photovoltaic power plant (SPV) in MW Scale"

1 MW

Grid Connected
Power Conditioning Unit for MW Scale
Solar Photovoltaic Power Plants

Outcome of the project "Development of a Futuristic Indigenous Power Conversion Technology for Grid Connected Solar Photovoltaic Power Plants" funded by **MeitY** through **NaMPET Phase II** and executed by **CDAC, Thiruvananthapuram** with the support for field trial from **West Bengal Renewable Energy Development Agency (WBREDA)**

SPECIFICATIONS

Nominal Power	: 1MW
Input Voltage (max)	: 800 V DC
Grid Voltage	: $415 \pm 20\%$, 3 Phase AC
Grid frequency	: $50 \text{ Hz} \pm 5\%$
I_{THD}	: $< 5\%$
Operational PF	: Unity / Programmable
Control	: With DSP-FPGA based Digital Controller
Converter	: IGBT based Voltage Source Inverter
Cooling	: Forced air cooling
HMI	: Touch Screen LCD using Tablet PC



TECHNICAL FEATURES

- ◆ PWM scheme for improved efficiency
- ◆ Paralleling and control of operating sequence for improving reliability and redundancy
- ◆ Reactive power support
- ◆ Power quality improvement with harmonic compensation
- ◆ Low Voltage Ride Through with reactive power support
- ◆ Anti islanding protection
- ◆ Active and reactive power ramping control
- ◆ Intelligent Maximum Power Point Tracking
- ◆ Current control during fault ride through
- ◆ Filter and control scheme for improved current quality
- ◆ Reduction of auxiliary power consumption so as to minimize sleep mode power
- ◆ Remote Monitoring through Internet using Android application
- ◆ Protection schemes implemented as per IEEE 1547 : 2003
- ◆ Harmonic performance as per IEEE 519 : 1992

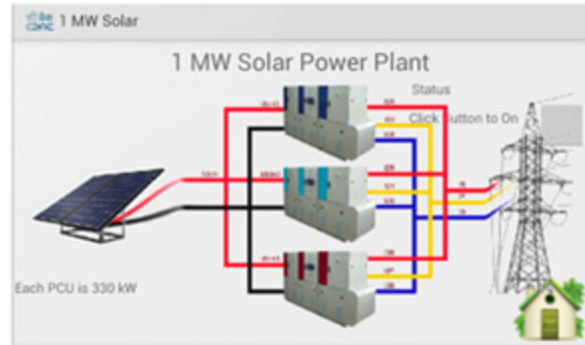


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Installation at Jamuria, West Bengal



- ✘ Indigenous technology of central inverter based Solar PV PCU
- ✘ Modular inverter stacks
- ✘ Advanced digital controller circuits, sensors and protection schemes
- ✘ Tablet PC based HMI & remote monitoring

