



FEB 2013 SPECIFICATION SUBJECT TO CHANGE WITHOUT NOTICE

GRID CONNECTED INVERTER

OVERVIEW

The PPS Grid connect Inverter (GCI) range is a state of the art equipment with robust control platform, high efficiency, high availability, low maintenance features built with quality components.

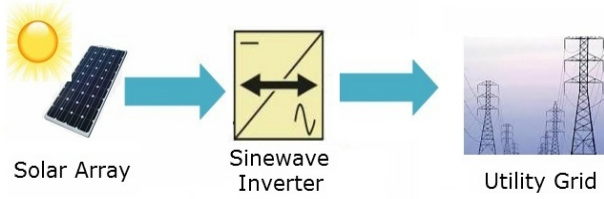
The GCI series comes with built in isolation transformers. The product is user friendly with well-documented installation and maintenance procedures, comes in a range of 10 to 250kVA units in three- phase configuration.

BASIC SYSTEM OPERATION:

Solar panels mounted in the field generate DC. The DC current generated by the solar panels cannot be fed directly in to the utility grid. The GCI range of inverters convert the direct current output from the solar array into grid compliant AC voltage, feed it in to the utility grid system with proper protection and control.

The GCI range of inverters comes with built-in transformer that ensures galvanic isolation of the DC side from the AC network. This is an important requirement for many utilities to permit connection of solar panels on to the grid. The system automatically wakes up in the morning and begins to export power to the grid, provided there is sufficient solar energy and the grid voltage, frequency is within the range.

If the grid goes out of range the inverter will be immediately disconnected and reconnected automatically at a pre-determined time after the grid comes back within range. When the exported power is very negligible for a pre-determined time the system will go into a 'sleep' mode by disconnecting the inverter from the grid.



SYSTEM FEATURES AND OPTIONS:

- MPPT control algorithm to maximise the solar energy fed into the grid.
- High conversion efficiency through use of IGBT technology.
- Low distortion factor of less than 3%, which relates back to a cleaner power in to the utility grid.
- The system will balance unequal phase voltages (with 3-phase systems) with reference to the red phase.
- Automatic 'sleep' mode at night to minimise unnecessary losses.
- Local LCD (liquid crystal display) and keypad for system control, monitoring instantaneous system data, event logs, data logs and changing set points.

- Time and date stamped system data logs and event logs available for importation into a spreadsheet for analysis via a local RS232 connection.
- Remote control and monitoring option available.
- Equipment delivered in standard 1800mm high cabinets with lifting hooks, mounting accessories and standard installation instructions.
- Factory calibrated equipment that is built and tested to customer specific requirement hence no site tuning is required.
- Wide installation references with high system availability.
- Can be custom built to meet specific customer or project requirements

TECHNICAL SPECIFICATIONS – GRID CONNECTED INVERTERS

Model	10K	15K	30K	45K	60K	90K
Nominal Output Rating (KVA)	10	15	30	45	60	90
Nominal AC Output Voltage	230/415					
Nominal DC Input Operating Voltage	240					
Max 24V Modules per String	10					

OPERATING PARAMETERS	INFORMATION
Output Voltage	415V AC, 3Phase, 4 Wire Output. Inverter to follow grid within +10%, -20% of Nominal Voltage Voltage window can be adjusted via system set points.
Output Frequency	Grid synchronised operation Synchronisation window can be adjusted via system set points Maximum Range: ± 3 Hz
Frequency Range	47Hz to 53Hz
Waveform	Pure Sine wave
DC Input Voltage	240V DC Nominal
MPPT Voltage Range	200V to 500V DC
Max. DC Voltage	450V DC
Power Factor	0.99
DC Ripples	<3.5%
Front Panel Interface	40x4 LCD panel with keypad displaying: Supply Voltage / Frequency Output Voltage / Current Output Power summation Input Voltage / Current Accumulated output kWhrs Temperature Sensor (Optional: Either for ambient or panel sensor) Solar Radiation (Pyranometer)
Total Harmonic Distortion	Less than 3%
RFI	Designed to minimise both conducted & radiated RFI emissions
Efficiency	Maximum 94%
Internal Protection System	Inverter overload Peak current (short circuit) protection Over temperature Over/under voltage protection Over/under frequency protection
Alarm Signals	Via system fault relay (voltage free contact)
Grid Interface Protection	Over / Under Voltage Over / Under Frequency Grid loss protection Incorrect phase rotation Unbalanced phase voltages Islanding protection Circuit breakers
Earthing Provisions	AC bypassing to earth on inverter and DC inputs
Control Type	Voltage source, microprocessor assisted output regulation
Power Control	Maximum Power Point Tracking
System Control	Automatic Power sensing, shutdown for low insolation. Power up when power output to grid available. Automatic recovery 90s after utility supply within parameters.
ENVIRONMENTAL	
Operating Temperature Range	5-50 degrees Celsius
Humidity	0-90% non condensing
Enclosure	Rated for IP30
DATA LOGGING	
Computer Ports	RS 232 referenced to ground (non-isolated)
Within Inverter	<ul style="list-style-type: none"> One logging port available. MODICON Mod Bus interface for local or remote SCADA communications. User adjustable averaging period from 1 minute to 24 hour results using 62.5 millisecond samples. Internal storage capabilities configurable for over 8.5days storage at 15 minutes logs. PC based software to control and monitor the control system locally or remotely via modem.
External Logging	<ul style="list-style-type: none"> Remote communications package Online graphical trending, including comprehensive system logging including those points described above Ability to transfer data to PC filing system Ability to store and restore system set point configurations remotely
Communications Method	Protocol MODICON Mod Bus (RS232)

Manufactured By:
PPS Enviro Power Pvt. Ltd,
D97/A, Road No: 18, Phase – 1,
IDA, Jeedimetla, Hyderabad – 500 055
Ph – (91) 40 2319 5123 / 24, Fax – (91) – 40 2319 5033