

# LOGICS POWERAMR PRIVATE LIMITED

## Powering Profit

System Integrator and Pioneer in Energy Management Systems, Metering Automation, Solar Monitoring, Scada, Analytics, ABT, DLMS, Water Management System

### DG-Solar Synchronization and Zero Export Solution

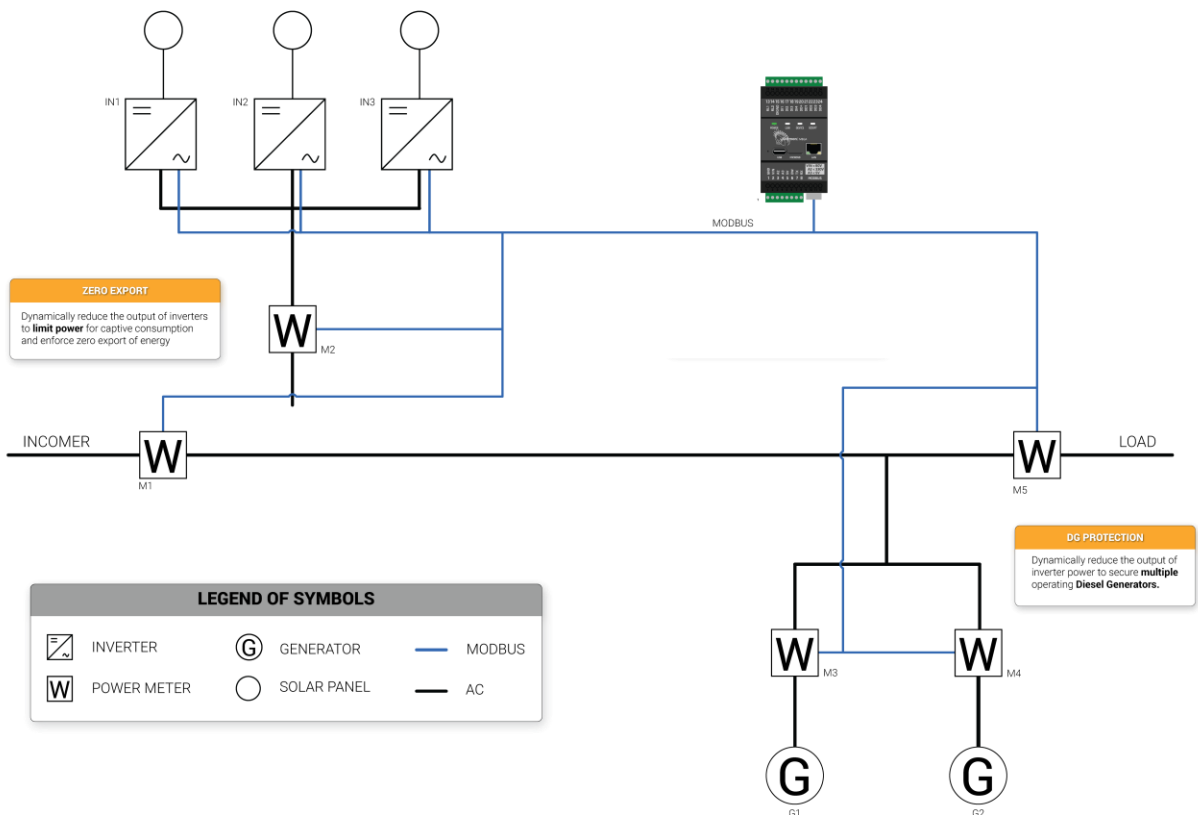
#### A. DG-solar Synchronization solution

This solution ensures that the solar inverters generate the power as per the change in connected load in case of no grid. In other words, the total demanded load gets smartly distributed between Solar and DG in such way that the DG runs at the minimum possible load and solar will fulfill the remaining load demand. Because the solar power generation is being altered as per the load, the problem of damage to DG is automatically taken care off.

#### B. Zero Export

In case of unavailability of net metering, to use solar as per load requirement, we need to sync solar with the grid. In this solution, solar will take only reference voltage from the grid, but does not export power to the grid. This way the user would be able to use grid-connected solar plant without export.

### Broad Schema Of Solution



- ***In case of DG Synchronization, meter shall be installed at DG panel.***  
*It will be ensured that DG runs at 30% to 36% of its KW rating eg. DG will run in the range of 30 KW to 36 KW in case of 100 KW DG set.*
- ***In case of Zero export, bidirectional meter shall be installed at Incomer side.***  
*Load from grid shall be ensured to run at 4% to 8% of the sanctioned load, it might change depending upon the load variation/ fluctuation.*

*The controller working principle is as per below-*

The working principle is as follows-

1. *Read Active Power from meter*
2. *Is Active power > Max Set point? If yes, increase power on inverters*
3. *Is Active power < Min Set point? If yes, decrease power on inverters*
4. *Repeat from step 1*

### **Basic Requirement:**

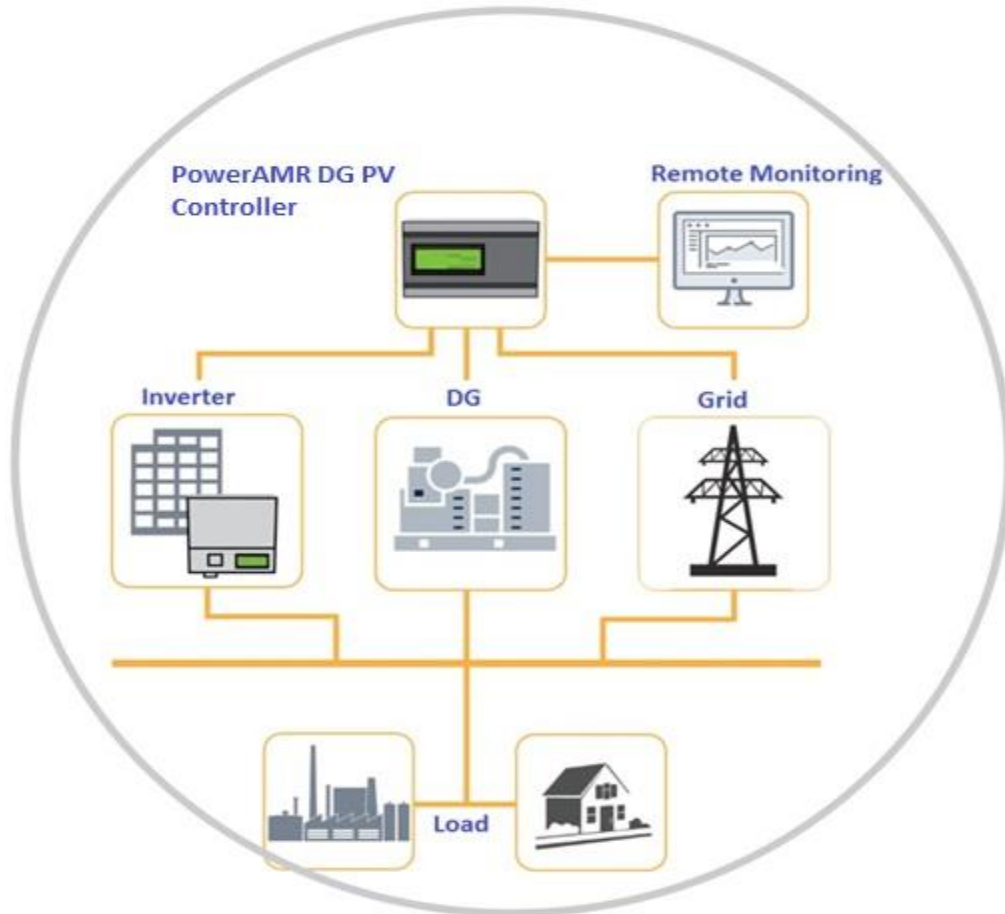
Following information is required for configuration :

1. Inverter(s) and Energy Meter(s) make and model
2. Inverter(s) rating in kW
3. Grid Load in kW
4. Diesel Generator(s) Rating in kVA, and minimum load-output in kW
5. Total Load of Site, which equals Solar + Grid + DG

## System Brief

### 1. DG-Solar Synchronization

The general Block diagram of DG-Solar Synchronization is given below-



When we get off status from the grid and ON status from DG or DG'S, the DG sync controller will throttle power of each Inverter as per building load. It also divides user load between DG and solar smartly in such way that DG will run at minimum load and solar cater maximum part of user load. This will result in the minimum fuel consumption of DG along with reverse power protection and solar optimized.

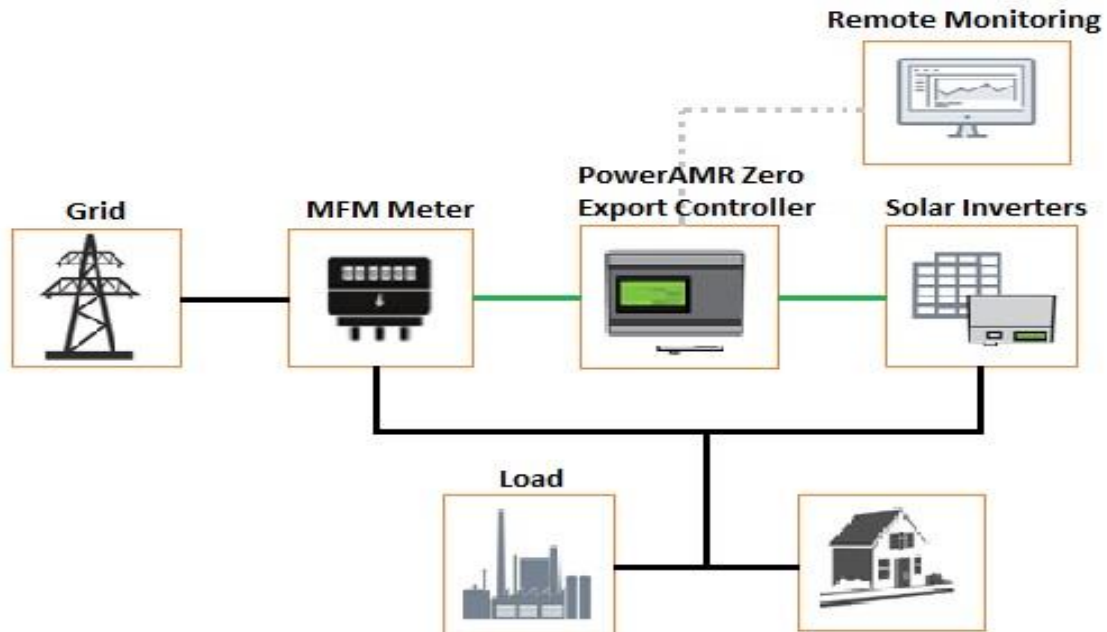
#### Key Benefits

- **Smart Control:** The device provides real time power control and will ensure that the inverter ramps down the solar production, in case of low/ no load.
- **Flawless Protection:** Our System ensures that there is no reverse feed of power to DG and protects the inverters from over-frequency damage
- **Graphical representation:** Client can log on to the PowerAMR website and see working of power control on real time through the single line diagram and graphical illustration.

- **Remote Monitoring:** PowerAMR DG PV Controller simultaneously acts a Data Logger and provide real time and historical data monitoring on our Solar Management Platform
- **Deemed Generation:** The system estimates the amount of energy throttled due to impact of DG PV Controller at every 10 minute interval.

## 2. Zero Export

The general Block diagram of Zero export solution is given below-



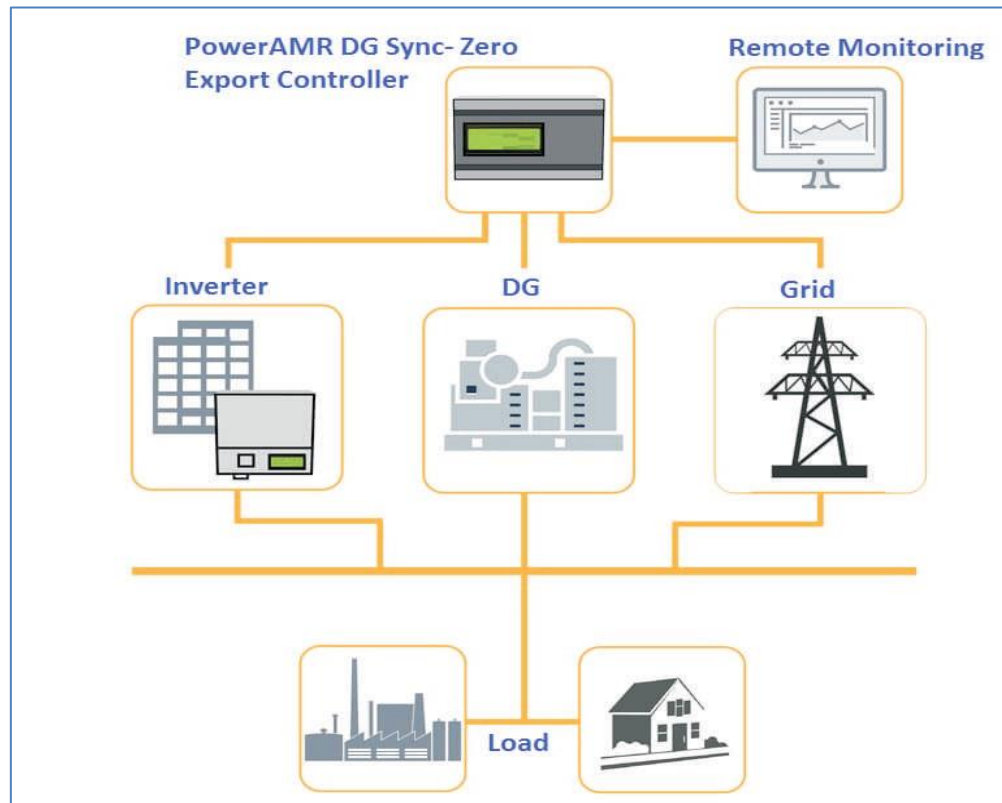
This solution is working when grid is available but there is no net metering at site. The zero export solution will help user to use solar as per demanded load. This solution will throttle the power of solar inverters as per building load and there will be No Export to grid.

### Key Benefits

- **Smart Control:** The device provides real time power control and will ensure that the inverter ramps down the solar production, in case of low/ no load.
- **Flawless Protection:** Our System ensures that the inverter doesn't trip and minimum or no reverse feed-in is sent back to the grid.
- **Graphical representation:** Client can log on to the PowerAMR website and see working of power control on real time through the single line diagram and graphical illustration.
- **Remote Monitoring:** PowerAMR ZED simultaneously acts a Data Logger and provide real time and historical data monitoring on our Solar Management Platform

- **Deemed Generation:** The system estimates the amount of energy throttled due to impact of zero export device at every 10 minute interval.

### 3. Hybrid Solution



This solution has common facility for DG –Solar syncing as well as Zero export. When the grid is available, it will work as Zero export solution and when DG is available for Reference voltage, it will work as DG-Solar sync solution.

### Compatible Devices

#### Inverters :

- ABB
- Chint Power
- Delta
- Fronious
- Goodwee
- Growatt
- Havells
- Huawei
- Hitachi
- Kaco
- K Solare
- Polycab

- Powerone
- Ingeteam
- Refusol
- Schneider
- SMA
- Sofar
- Solis
- Solax
- SolarEdge
- Sungrow
- UTL
- Waaree
- Zever Solar

### **Energy Meters :**

- Archmeter PA330
- Eastron SDM630
- Elmeasure Little Genius & Tiny Master
- Klemsan KLEA 320P
- Legrand EMDX3
- L&T ER300P
- Schneider Conzerv EM6400
- Schneider PowerLogic EM7280
- Secure Elite 440-444, 440-445 & 440-440
- Sumeru Verde Damodar series

**\*\* Addition of other inverters and energy meters based upon requirement**