

**MICROCARE**  
SOLAR ENERGY

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# MODULAR MINI GRID SOLUTION

Designed Developed Manufactured  
in South Africa





# MODULAR MINI GRID SOLUTION

Microcare has developed and designed a Modular Mini-Grid Solution to meet any single or three-phase mini-grid requirement from 30kW up to 1MW. Ideal for Containerised EBoP (Electrical Balance of Plant) and ESS (Energy Storage Systems), this locally manufactured product is the perfect solution for your energy requirements.

This unique solution is rated in kW not KVA for maximum power, giving all the advantages of a parallel system (redundancy, being modular) without any of the disadvantages of a traditional parallel system (complicated installation, design, programming, unbalanced systems, slow changeover, load distribution throughout the Inverters, difficult DC wiring).

## ADVANTAGES INCLUDE:

- Easy and flexible Solar PV Integration (AC coupling, DC coupling or both are possible)
- With the addition of an Energy Management System both DC & AC can be supported
- No de-rating for temperature
- 200% overload and Auto Transfer
- No reprogramming or reconfiguration in case of individual inverter block failure.
- Inverter can continue to run even after a module failure without the need to shut down
- Fastest changeover possible
- 100% phase unbalance is possible
- HV MPPT per string
- Connection on same DC bus, built-in surge, fuse & isolator
- Easily scalable



## PLUG & PLAY MODULAR SYSTEM

Unlike traditional Mini Grids that place multiple units in parallel, the Microcare design makes for the fastest, easiest and safest Mini-Grid installation available. The installation kit is a plug and play system which includes the nuts, bolts, copper bus bars, etc. The system works as one big inverter (single unit), not as multiple units in parallel (no master/ slave). The unique design allows for post installation up- sizing and the hot swap of Inverter blocks if needed. This unique local design has no restrictions so the sizing of the PV Input, Batteries and Inverters can be done independently.

## BUS BARS

The Mini-Grid has a passively balanced bus bar system installed safely and neatly behind the equipment. The end-user does not need to worry about balancing the DC or AC part of the system. The unique design strengths allows the entire Mini-Grid system to work as one big inverter, not as multiple units in parallel allowing for a fast change- over, instant load distribution & larger load changes.

## CHANGEOVER

The changeover is independent form the power modules and can be rated for any capacity (200% bypass or even a 1000% bypass is possible). This allowed Microcare to design for the best transfer speed possible. Because there is not multiple changeovers in parallel, no unbalancing can occur and no premature contact failures happening. Should a power module fail, the changeover capacity is not affected.

## DC COUPLED SOLUTION (MPPT) VS. AC COUPLED SOLUTION (GRID TIED INVERTER)

The 400V Microcare MPPT (DC) is ideal if the installed PV capacity is much larger than the average load or if the load consumption is mostly during non-sun hours. PV Power by passes the battery and goes directly to the Bi-Directional Inverters.

A DC Coupled system does not need the battery inverter to be rated for the size of PV array there- fore you can get away with a smaller Inverter than what is possible with an AC coupled system. For example if the AC coupled has 100kW PV you will need a 100kW Bi-Directional Inverter as the bat- teries will need to be charged via the Bi-Directional Inverters.







45kW Mini-Grid System



Commissioning a 30kW Mini-Grid



60kW Three-Phase Mini-Grid powering a farm (Ground Mount Solar)



Containerised 60kW Three-Phase Mini-Grid with 30kWp Solar Power





75kW Three-Phase Mini-Grid with 90kW Li-Ion Batteries



40kW Ground Mount Solar System for the Mini-Grid



60kW Three-Phase Mini Grid with Intelligent DC Charger





46kWh Li-Ion Battery Bank



60kW Mini-Grid Powering a Church



90kW Single-Phase with  
864kWh Battery



30kW Mini-Grid (Roof Top)



105kW Mini-Grid System Powering a Factory



# MICROCARE

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