

DEVELOPMENT OF POWER OPTIMIZERS WITH ADVANCED FUNCTIONALITIES AND SERVICES AND EMBEDDED CONTROL SYSTEMS

Innovations and Benefits - Development and realization of innovative products with higher performance and reliability, lower costs and multifunctionality characteristics, also applied to efficient energy consumption. Provision for high-end user tailored services in the framework of Smart Grids - also at micro-network scale - optimising renewable energy demand, distribution and storage.

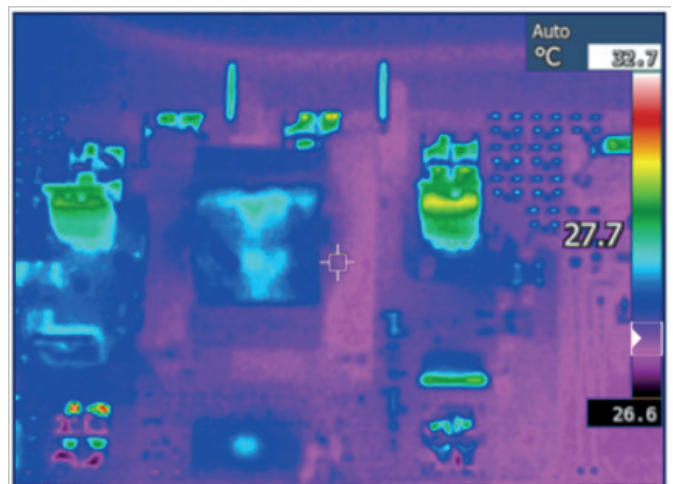
Uses - BOS for renewable energy sources (photovoltaics, micro-wind, FC, etc.). Microgrid for distributed energy generation and storage. Efficient-energy upgrading of building clusters (NZEBS). Solar tracking. Data acquisition /facility, telemonitoring. Control and automation.

Past and Present Activities -

- Design and test of PV optimizing modules for smart management of PV systems, on-grid and off-grid.
- Design and test of DMPPT DC-DC converters and microconverters.
- Design and test of DCS modules for integrated PV & storage management and optimisation.
- Design of custom converters tailored to Smart Grids and micro-grids applications.
- Overall design and deployment of advanced services geared to end-users as well as to DS0.



DMPPT converter tailored to PV systems



Thermal characterization



Italian National Agency for New Technologies, Energy and Sustainable Economic Development
www.enea.it

Energy Technologies Department
 Photovoltaic and Smart Networks Division
 Photovoltaic Systems and Smart Grid Laboratory
 Referents: **Giorgio Graditi** - giorgio.graditi@enea.it
Giovanna Adinolfi - giovanna.adinolfi@enea.it