

EV SBC

EV SMART BATTERY
CHARGER



INESCTEC
TECHNOLOGY & SCIENCE



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EV SMART BATTERY CHARGER

The battery charger prototype developed by INESC TEC is a high value device with integrated grid support functions. Based on highly accurate local measurements, voltage and frequency droop control is implemented to reduce the charging rate when there are excessive voltage drops or large frequency changes, and even to reverse the power flow in very critical conditions. Furthermore, if the node where the EV is connected has a light load and an excessive local renewable energy production, the charging rate is slightly increased to maintain the voltage under its upper limit. A battery monitoring system ensures the adequate SOC management during grid support mode of operation.

MAIN FEATURES

- Full-scale bidirectional power flow with low harmonic content
- Wide battery pack voltage range
- BMS Status, SoC, SoH, Highest and lowest cell monitoring
- Galvanic isolation
- Continuous overload and short circuit protection
- Computer diagnosis and monitoring software
- Remote control and monitoring
- Online reconfiguration by micro grid controller
- Power derating according to grid condition, including V2G
- Grid support during disturbances

SPECIFICATIONS

- Maximum power: $\pm 3680\text{W}$ // Max. Charging Current: 10A
- Battery pack voltage range: 350...480V
- Grid voltage: $230\text{V} \pm 20\%$ // Grid frequency: 48...52Hz
- Connectivity: RS232, CAN and USB (firmware upload only)
- Switching frequency: $\geq 20\text{kHz}$ // P.F. (full load) > 0.95 // THD (full load) $< 5\%$
- Droop control range: 200...260V, 48...52Hz, $-3680 \dots +3680\text{W}$

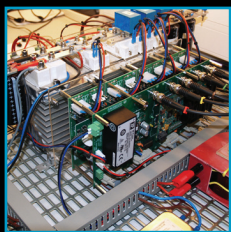


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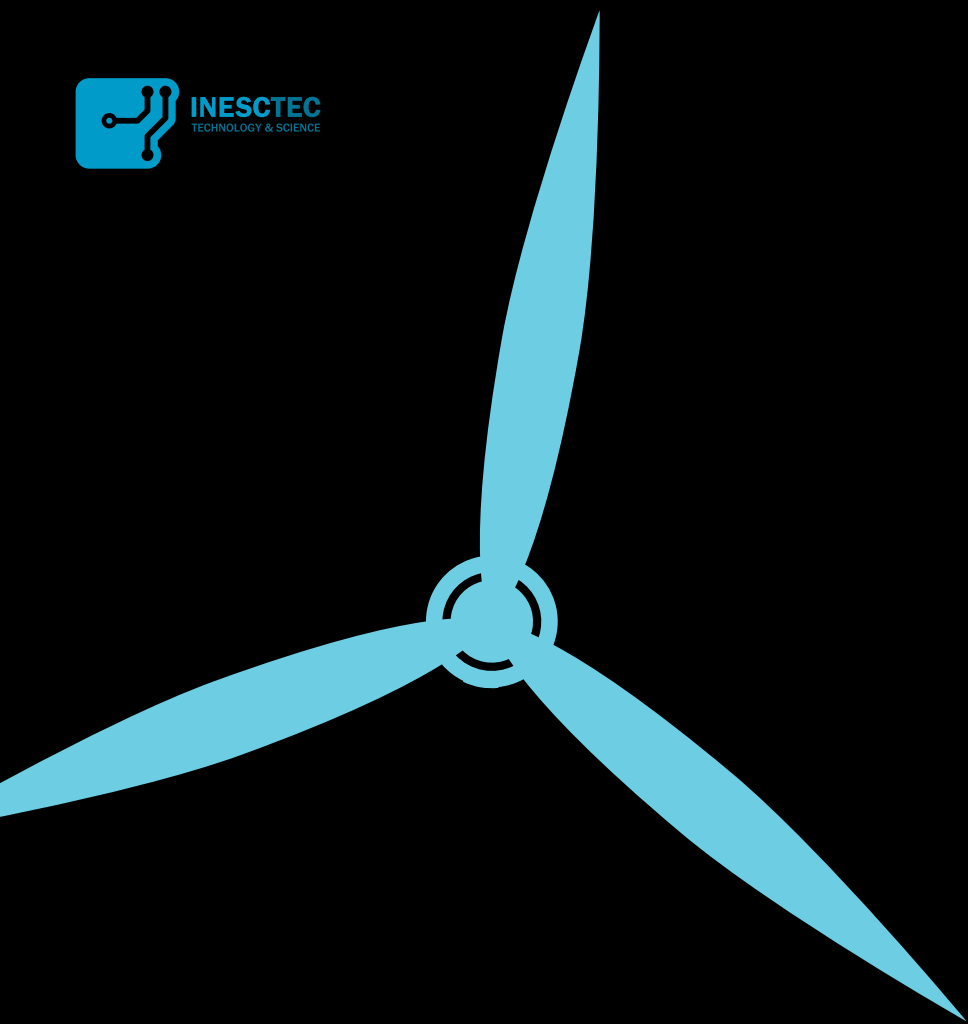


WISE

WIND INTEGRATION
IN SMART ENVIRONMENTS



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TECHNOLOGY & SCIENCE



WISE

WIND INTEGRATION IN SMART ENVIRONMENTS

The micro wind turbine inverter developed by INESC TEC is a high value device with integrated grid support functions. The inverter combines a fast and efficient power vs. speed tracking with an advanced Droop control based on grid voltage and real-time frequency measurements. These characteristics prepare the device for the next step in the expansion of micro producers. Additional features such as fast response to voltage and frequency changes allow the distribution network to easily recover when failures occur.

MAIN FEATURES

- Full-scale controllable power flow with low harmonic content
- Integrated 3kW dump load control
- Real-time grid voltage and frequency monitoring
- Continuous overload and short circuit protection
- Computer diagnosis and monitoring software
- Remote control and monitoring
- Online reconfiguration by micro grid controller
- Power derating according to grid condition
- Grid support during disturbances

SPECIFICATIONS

- Maximum power: $\pm 3680\text{W}$ // Max. Generator current: 20A
- Generator voltage (line-to-line): 210...260V // Generator frequency: 10...100Hz
- Grid voltage: $230\text{V} \pm 20\%$ // Grid frequency: 48...52Hz
- Connectivity: RS232 and USB (firmware upload only)
- Switching frequency: $\geq 20\text{kHz}$ // P.F. (full load) > 0.95 // THD (full load) $< 5\%$
- Droop control range: 200...260V, 48...52Hz, -3680...+3680W

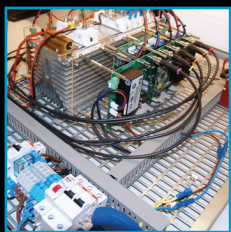


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SISE

SOLAR INTEGRATION IN SMART ENVIRONMENTS



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SOLAR INTEGRATION IN SMART ENVIRONMENTS

The solar power inverter developed by INESC TEC is a high value device with integrated grid support functions. The inverter includes a fast and efficient MPP search, combined with advanced Droop control based on real-time grid voltage and frequency measurements. These characteristics prepare the device for the next step in the expansion of micro producers. Additional features such as fast response to voltage and frequency changes allow the distribution network to easily recover when failures occur.

MAIN FEATURES

- Full-scale controllable power flow with low harmonic content
- Wide PV array voltage range
- Real-time grid voltage and frequency monitoring
- Continuous overload and short circuit protection
- Computer diagnosis and monitoring software
- Remote control and monitoring
- Online reconfiguration by micro grid controller
- Power derating according to grid condition
- Grid support during disturbances

SPECIFICATIONS

- Maximum power: $\pm 3680\text{W}$ // Max. PV array current: 10A
- PV array voltage range: 150...450V
- Grid voltage: $230\text{V} \pm 20\%$ // Grid frequency: 48...52Hz
- Connectivity: RS232 and USB (firmware upload only)
- Switching frequency: $\geq 20\text{kHz}$ // P.F. (full load) > 0.95 // THD (full load) $< 5\%$
- Droop control range: 200...260V, 48...52Hz, -3680...+3680W



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