

Renewable Energy Controller for Hybrid Microgrids

INTRODUCTION

The RN200 is a controller for the protection and control of the inverters used with renewable sources (wind, photovoltaic, etc) in microgrids.

It allows for simple integration of renewable sources with generators and/or mains. It allows to maximize the penetration of renewable sources, while ensuring maximum safety on the power supply to the load and maximum efficiency of the generators, while avoiding underloading of the sets.

It communicates via a CANBUS interface with the genset controllers (GC600, DST4602 Evolution) and with the mains controllers (MC200), ensuring simple integration of all components (both from the logical point of view and for the wirings).

Each RN200 manages up to maximum 16 inverters (and maximum 16 RN200 are managed per system); communicates through the Modbus protocol, using any of its communication interfaces (RS232, RS485, Ethernet). The inverters can also be of different types. From each inverter, it acquires the rated and current powers, as well as the diagnostic alarm codes. It is able to start/stop the inverters, as well as to control their active/reactive powers.

MAIN FEATURES

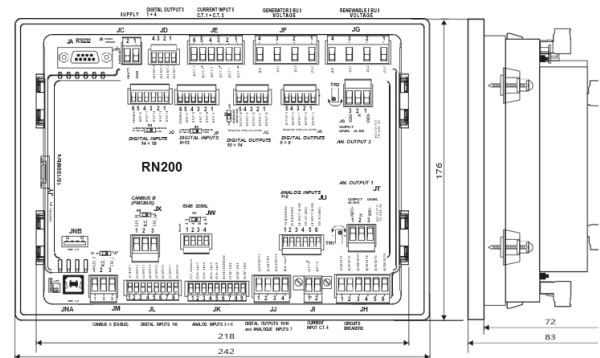
- Automatic start/stop of the inverters, according to the presence of voltage on the common bus
- Automatic management of a circuit breaker (RNCB), connecting the inverters to the common bars
- Limitation of the active power of the inverters, to ensure the operation of the generators at a configurable minimum power (to avoid engine wear caused by prolonged operation at low power)
- Setting of a power reserve (SPINNING RESERVE) for the generators, so that they can compensate for sudden drops
- in the production of renewable sources (clouds) without causing blackouts on the loads
- Two ways of managing the reactive power of the inverters:
 - Fixed power factor on the generators (and all the rest is supplied/absorbed by the inverters)
 - Sharing of reactive power with generators, based on nominal powers
- Possibility of working OFF-GRID (island mode) and ON-GRID (in parallel to the grid)
- Percentage sharing of active/reactive powers among inverters
- Percentage sharing of active/reactive powers among the RN200

It also allows manual control of both the inverters and the RNCB circuit breaker.

The setting of the parameters can be managed directly from the front panel of the controller, or from the free BOARDPRG4 programming software.

A complete and configurable historical recording system is available, which makes 'on event' and periodic recordings (maximum 523 recordings for each archive with the default configuration). The historical archives can be viewed on the display of the controller or via the HISVIEW PC software.

IMAGE OUTSTANDING



The device includes a fully configurable PLC, in addition to the AND/OR logic that can be combined with timers: in this way it is able to satisfy specific customer or application requests. The PLCEDITOR software allows you to create and test the PLC program.

EMBEDDED FUNCTIONS

- 18 configurable opto-insulated digital inputs
- 18 configurable digital outputs
- 7 configurable analogue inputs (6 x 0-10Vdc, 1x 0-32 Vdc)
- 2 configurable insulated analogue outputs

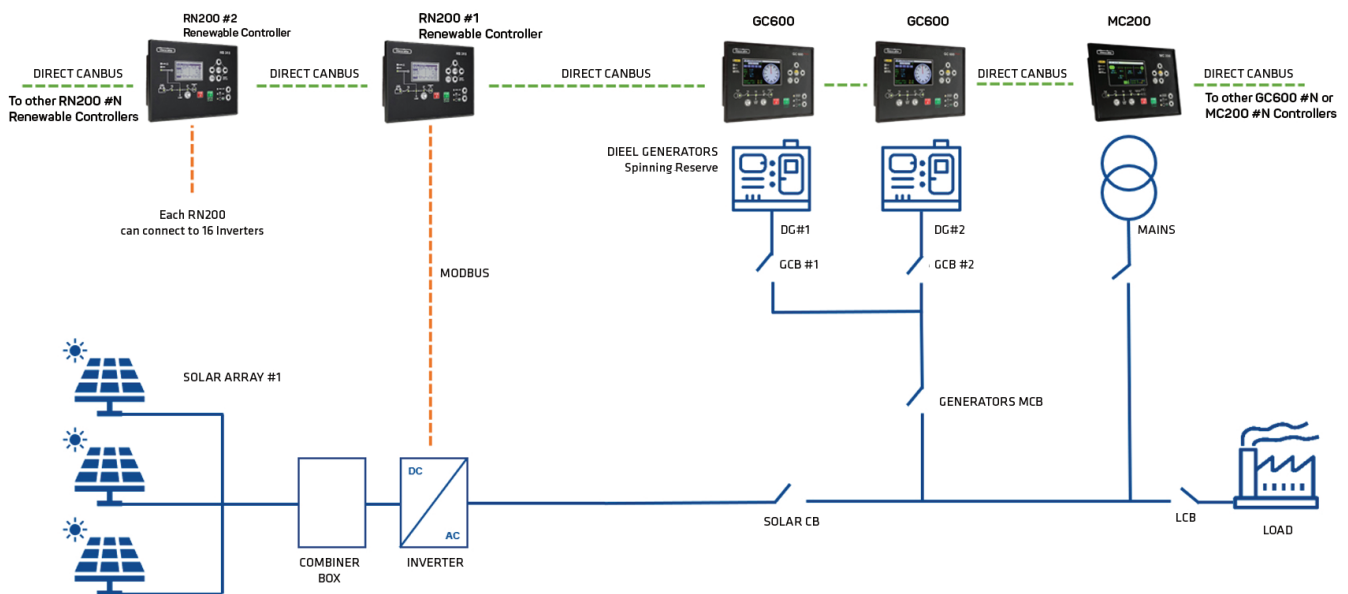
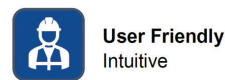
COMMUNICATIONS

- 1 USB port (Modbus RTU slave)
- 1 RS232 port (Modbus RTU slave)
- 1 RS485 insulated port (Modbus RTU slave)
- 1 Ethernet RJ45 port (Modbus TCP slave)

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TECHNICAL DATA

- Power supply voltage 7-32Vdc
- Power supply consumption less than 6W (225mA @ 27 Vdc)
- Rated frequency 50Hz or 60Hz
- Operating temperature -25°/+60°C
- Storage temperature -30°/+80°C
- Humidity 10-90% (non-condensing)
- Dimensions 244 (L) x 178 (H) x 83 (P) mm
- Panel cut-out 218 (L) x 159 (H) mm.
- Weight 1100grammes
- Protection degree IP65 with provided gasket
- Graphic colour display TFT 4.3" 480 x 272 pixel with backlight
- EMC compliant to EN61326-1
- Safety compliant to EN61010-1



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The information contained in this document is substantially correct at the time of publication but may be subject to change. Please work with your Mecc Alte contact to confirm details.



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POWER FROM WITHIN