

MPJ 02 MICROPROCESSOR MONITORING and CONTROL UNIT



DESCRIPTION



Monitoring-control unit „MPJ 02“ is a product that is completely designed, developed and produced in Mareton having as a target fulfilling all the client’s requests to get better monitoring, control and signalization. MPJ 2 is a central device of every our complex UPS system and it controls the running of every single system element, follows certain measuring values and compares it with set up limits, and performs activities in order to signalize and fix eventual errors. This unit makes possible the control of certain statuses and values, locally on display and remotely as well.

Taking in consideration our client’s requests to get better, simpler and more comfort control, this unit was created based on powerful, modern 32 bit processor, ARM architecture combined with large high visibility 7” LED TFT display with touch functionality that enables simple and quick access to all the functions of this control unit. Connecting the control unit through PC USB port and using the special PC software, easy adjustments of all the unit’s parameters are enabled.

All the measuring, control and monitoring functions are set up in separate modules and this microprocessor unit is the center of monitoring and communication with other devices within the system and outer communication devices. Having set apart measuring modules from control unit, positioning of measuring modules as closest possible to measuring points is enabled, whilst the control unit itself can be installed in the optimal position. Different segments being dislocated does not disturb the measuring fidelity and accuracy but avoids possible too long wires being stretched to measuring points as well. This system is decreasing the other devices disturbance influences within the system or disturbances from outer resources as well. With other devices and modules within the system, the control unit communicates through very reliable CAN channel on speed of 100kbit.

Besides the communication with devices such as input network unit, rectifiers, inverters, DC/DC converters, control unit also communicates with modules such as basic measuring unit for DC voltages, currents and temperatures. It communicates with units for measuring AC grid parameters, digital input units and relay outputs as well. The sampling and AC data displaying unit is also available – this unit constantly monitors grid status and is capable of, according to certain set points, recording and displaying the grid oscillogram so we can check the form and value of measuring signal and eventual disturbances as well. This helps us to detect the causes of such disturbances.

TECHNICAL DATA

- ARM controller @100 MHz, 128 MB flash, 32 Mb SDRAM,
- Supply voltage 24 V comes out of the converter that is supplied from grid and from batteries as well, maximal consumption is 250 mA of output current,
- LCD TFT display, diagonal 7 inc (MPL 02) resolution 800 x 480, or 12 ich (MPJ 03)
- 4 wire touch screen.

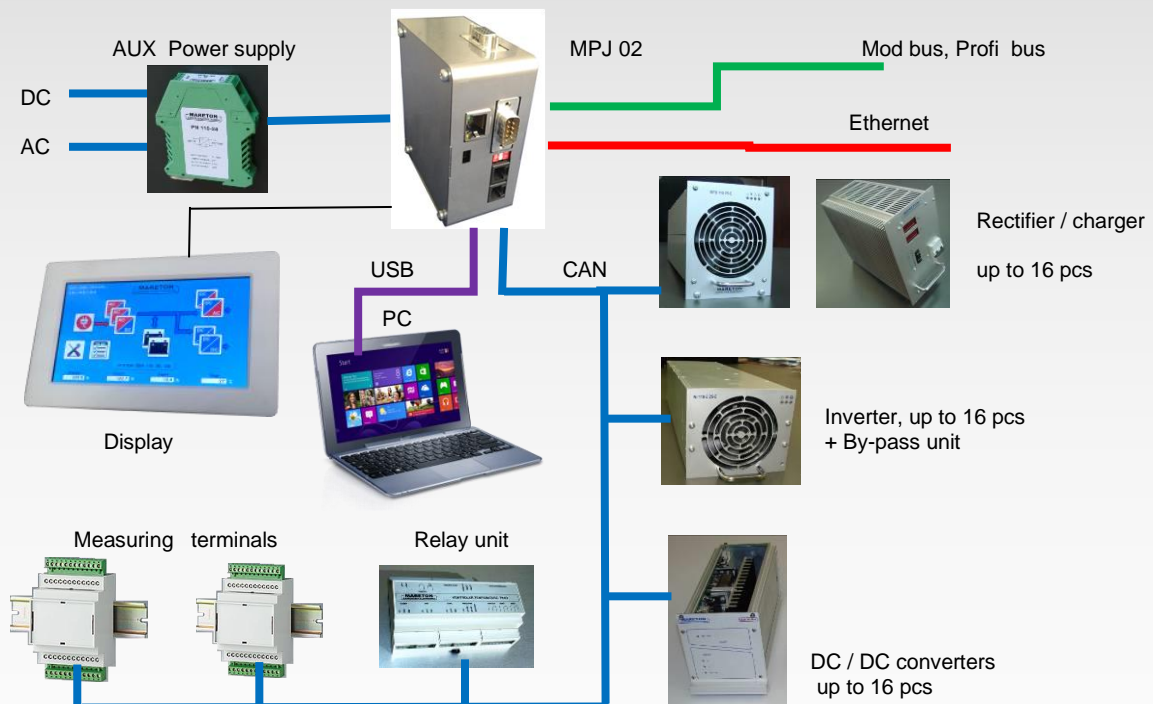
Communication connections:

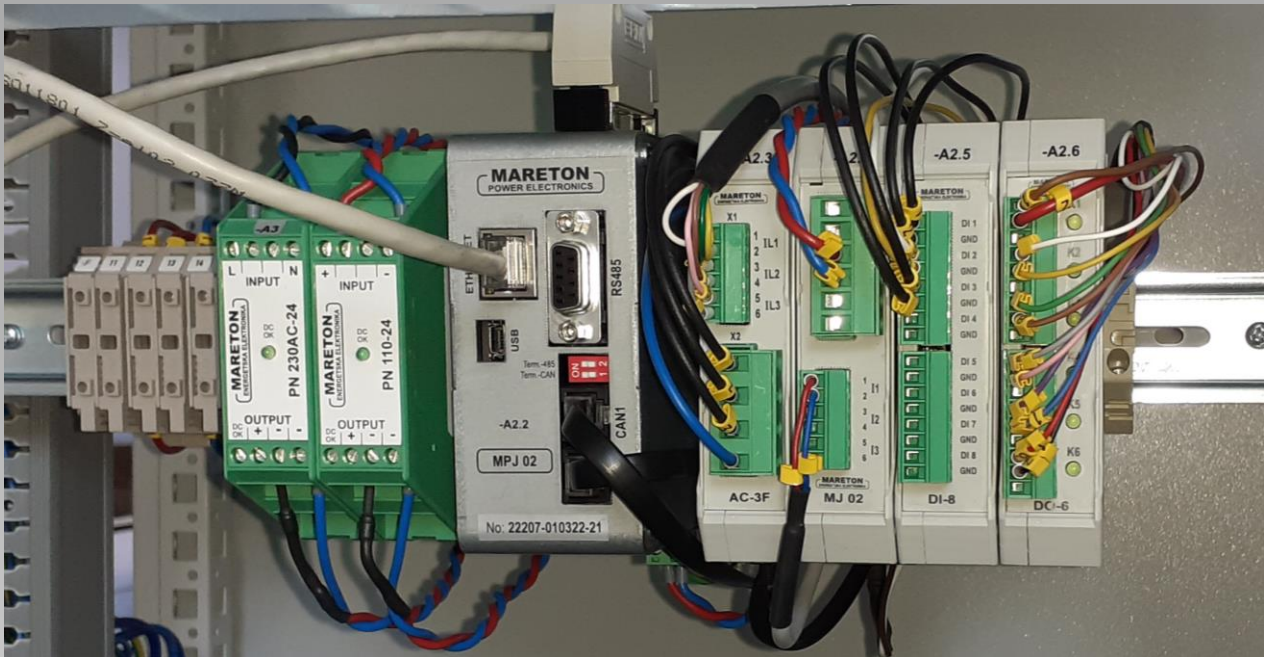
- CAN 2.0 standard mode at 100 Kb,
- SD card to write 3000 or more events with time and value of measured event.
- Serial port for terminal,
- USB port for control unit programming,
- Ethernet port, connector RJ45,
- RS485 port for MODBUS / PROFIBUS

Characteristics of typical microprocessor control-monitoring unit installed inside UPS systems that are being delivered to the electric production/transport/distribution company plants.

- Measurements: input grid voltages, voltages and currents of every single rectifier (inverter, DC/DC converter), voltage and current of battery, voltage and current of loads, battery temperature
- Errors: input voltage phase black-out, rectifier (inverter, DC/DC converter) malfunction, warning battery low voltage, undervoltage battery black-out, battery switch black-out, output protection switches black-out, overheating, battery asymmetry, single output bus earth leakage.
- Control: rectifier (inverter, DC/DC converter) function control, equal distribution of current towards rectifiers, battery charging regulation regarding the temperature (2 up to 5 mV/°C/cell), charging characteristics choice (IU or IUUo), battery current limitation.
- Other: real time watch, battery continuity test, battery assessment capacity test, last 3000 events memory (or more – if requested), all data on touch screen display, events display menu, additional SD card, time delay of certain reactions, access password, oscillogram display
- Communication: IEC 60870-5-104
- Language: Croatian, English, German, Italy and Russian

Display of typical power supply system configuration control with MPJ 02“ control unit





Typical configuration:

- fuses
- PN 230AC – 24, AC power supplies (230 VAC / 24 VDC)
- PN 110DC – 24, DC power supplies (110 VDC / 24 VDC)
- MPJ 02, Central monitoring and control unit
- AC-3f, AC measure unit – 3 phase network
- MJ 02, DC measure unit – DC voltage and current
- DI-8, Digital input unit – 8 signals
- DO-6, Digital output unit – 6 relays

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