

## 5.01. NETWORK BIDIRECTIONAL INVERTERS

Network inverters are intended for transferring the energy from solar photovoltaic power systems and electric energy storage systems to external electric network.

*They provide:*

- integration with generating equipment of renewable energy and interaction with end-users;
- maintenance of the load schedule and power supply during its interruptions;
- improvement of electric energy quality and energy system reliability;
- accumulation of electric energy during a low-cost period and its delivery during a high-cost period.



### *Technical specifications*

#### *Output parameters - AC voltage*

Rated inverter power	500 kW
Output voltage	283/400 V+10%-15%
Rated output current	1000 A
Output voltage frequency	50 Hz +3%/-5%
Total Harmonic Distortion (THD)	≤ 3%
Efficiency at rated load	≥98,2%
Power factor	≥0,99

#### *Input parameters - DC voltage*

Input voltage range of the inverter	400...1000 V
Voltage range for maximum power take-off (MPPT)	500...820 V
Number of inputs with independent MPPT control	8 x 200 A
Maximum current	1000 A
Load	Distribution network 0,4 kV / 10 kV

*Advantages:* In comparison with European analogues, the inverters have considerably smaller weight, dimensions, and noise indexes, as well as lower cost. They provide almost sinusoidal form of the output voltage. The modular structure of the inverters makes it easy to control the power of electric power supply system.

*Five bidirectional inverters with a power of 200 kW and seven inverters with a power of 500 kW are implemented at solar power plants.*