

1. **Frequency converter "PAPIR"**

The bidirectional frequency converter of the PAPIR series is produced in the power range from 1 to 5 MW and is used in powerful systems, including for controlling the engines of ship propulsion systems: steering rudders, gears and thrusters. The device smoothly starts and stops the electric motor, controls its temperature, speed and power, and protects the electric drive according to controlled parameters. Embedded software of our own design provides user friendly and flexible setting up.



5 sets of 2.4 MW each were manufactured.
In production 2 sets with a capacity of 0.8 MW each.

2. **Bidirectional frequency converter "BEREZA"**

The bidirectional frequency converter of the BEREZA series is produced in the power range from 500 to 900 kW and is used in middle range of powerful systems, including DC charging stations, uninterruptible power systems, shaft generation systems and other applications. Embedded software of our own design provides user friendly and flexible setting up.



9 sets were manufactured, 2 sets of 600 kW each and 7 sets of 900 kW each.
There are 6 sets of 600 kW in production.

3. **Electric power system "TRANIT"**

UES series "TRANIT" with a common DC bus is one of the most promising trends in modern electric transport. It effectively integrates disparate sources and consumers of electrical power through semiconductor frequency converters with reversible function (so-called bidirectional converters), thereby giving complete control over the flow of electrical power in the ship's system. Embedded software of our own design provides user friendly and flexible setting up.



19 sets produced.
10 sets in production.

4. **Dynamic voltage compensator "KANON"**

The dynamic voltage compensator of the "Kanon" series is the most modern and effective solution for eliminating short-term voltage fluctuations (overvoltage, voltage dips) of a relatively shallow depth. Kanon is used in power systems up to 1 MW. Embedded software of our own design provides user friendly and flexible setting up. Applicable for the complicated technical equipment and systems sensitive for the energy supply quality.



2 sets of 200 kW power were produced.

5. **Electricity storage system (ESS)**

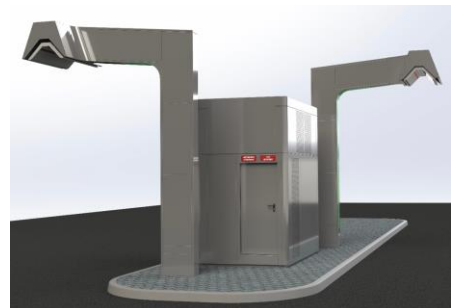
ESS of "Snegir" series is a device that includes a battery, a network interface device (reversible inverter) and a control system. The ESS is a full-fledged element of the "digital" electrical network (NeuralGrid (NG)) - it is monitored, controlled, and integrated into the overall electrical network management system. ESS is used in systems with a power of up to 5 MW. Embedded software of our own design provides user friendly and flexible setting up.



10 sets in production.

6. **Ultra-fast charging station (UFC)**

The ultra-fast charging station (UFC) of "Bastion" series is equipped with a unique automatic transfer system (ATS) and is designed for charging electric vehicles from different types of networks (DC and AC). Embedded software of our own design provides user friendly and flexible setting up.



1 set of 300 kW power produced as a pilot.

7. **Local automation control system "Impulse"**

The system under Impulse tradename is designed for remote control of a propulsion complex with electric propulsion or based on a diesel propulsion system. Embedded software of our own design provides user friendly and flexible setting up.



6 sets produced.

8. Frequency converters the "Inverse" series

The Inverse series frequency converter is produced in the power range from 1.5 to 315 kW and is used in electric drives for various purposes. The inverter smoothly starts and stops the electric motor, controls its temperature, speed and power, and protects the electric drive according to controlled parameters. Simple and reliable embedded software of our own design provides easy "plug&use" setting up.

15 sets manufactured with power of 45 kW, 55 kW and 200 kW.



9. Electrical equipment set "KROS"

The KROS equipment set includes a wide range of devices intended for power supply, status monitoring and control of various devices. Delivered to Customer as a complete ready to use system.

8 sets produced.



10. Control system for centrifuge "LOZA"

The LOZA control system controls a horizontal centrifuge with a continuous unloading, designed for mechanical centrifugal separation due to the difference in the density of substances. Simple and reliable embedded software of our own design provides easy "plug&use" setting up. Applicable to use in severe conditions.

3 sets were manufactured, including an explosion-proof version.



11. Roll stabilizer control system "SKAT"

The SKAT control system provides control of the ship's side rudders to reduce the rocking of the ship. Deep mathematics development including simulation process makes the system well adopted to different conditions of maintenance. Embedded software of our own design provides user friendly and flexible setting up.

1 set made.



12. Lubrication system controls "MUSS"

The MUSS control system provides control of complex hydraulic systems of various industrial mechanisms, including shaft line gearboxes, huge thrust and line bearings, steering rudders, propulsion pods etc. Simple and reliable embedded software of our own design provides easy "plug&use" setting up.

4 sets produced
4 sets in production.



13. UEES main distribution board

The main distribution board (MSB) is the central point where electrical energy is supplied from sources (generators) and where it is distributed among the various groups of consumers on the ship.

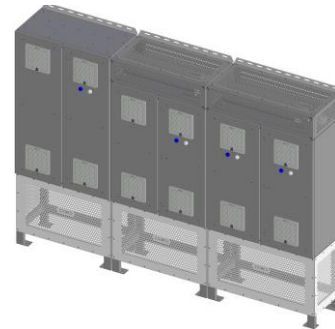
1 set made.



14. Uninterruptible power supplies "ONIS"

UPS series "ONIS" are produced in the power range from 10 to 80 kW. UPSs are optionally equipped with input and output transformers, an ATS circuit, bypass and other options. Simple and reliable embedded software of our own design provides easy "plug&use" setting up.

4 sets produced.



15. DC-DC voltage converters

DC-DC converters are direct current converters. They allow you to change the constant voltage. Switching stabilizers or voltage converters are used as DC-DC converters. For relatively small voltage changes, switching stabilizers are usually used as a DC-DC converter. It should be noted that, unlike compensating stabilizers, switching stabilizers can both decrease and increase the input voltage. Simple and reliable embedded software of our own design provides easy "plug&use" setting up.

1 set made.



16. Electric power system "LIMAN"

The unified electrical power system of the floating facility "LIMAN" is an electrical power system that provides power to the propulsion complex, lighting systems, navigation equipment, auxiliary mechanisms and other systems on floating facilities. Embedded software of our own design provides user friendly and flexible setting up.

20 sets produced.



17. Jason series power stacks

The Jason stack combines and provides control of three semiconductor assemblies (modules), consisting of two IGBT transistors and two counter diodes, connected according to a half-bridge circuit, overall dimensions 152 * 62 * 17 (mm) with a maximum voltage of up to 1700 V and a nominal current up to 600 A. (200, 800, 1200 kW). Available in air-cooled and water-cooled versions. Embedded software of our own design provides wide range of setting parameters (abt 100).

200 sets produced.



18. Frequency converter of medium voltage based on IGBT modules

The advanced solution of the convertor with built-in remote control and monitoring system for solar power plants under Podsolnuh (TrePre) trade name. The device is designed to convert a direct voltage of 1200 (1500) V coming from photovoltaic modules (PV) into an output alternating voltage of 550 (600) V and transmit electrical energy to an external power supply network with a frequency of 50 (60) Hz. Embedded software of our own design provides user friendly and flexible setting up.

1 set in production.



19. UPS YANDEX

Uninterruptible power supply 2500 kW can be online or offline type with support autonomous time for 20 sec. The UPS is designed to supply with electricity as back-up source to keep the data center on when main supply is off. Type of energy storage system – supercapacitors. Embedded software of our own design provides user friendly and flexible setting up. Rated load power – 2500 kW. Air cooling.

1 set in production.

