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Energy Module 24M10000:
New Quality in Vehicle Power Supply

2025

ENERGY MODULE 24M10000

OPERATING PRINCIPLE

The 24M10000 module is designed to be used in conjunction with traditional vehicle battery. The module consists of a supercapacitor and a smart DC-DC converter:
- The supercapacitor differs from the battery in that it offers higher power output over a wider temperature range.
- The DC-DC converter serves as a bridge between the supercapacitor and the battery.

When a vehicle is parked, the DC-DC converter turns off and the module stops using electricity. It automatically turns on when a central locking system is activated, and then the battery charges the supercapacitor in 10-15 seconds.

When an engine starter is activated, the DC-DC converter ensures that the required current is maintained at the module's terminals. This current combines with the battery's current, and may exceed it by a factor of 2 to 4.

CHARACTERISTICS

Rated voltage, V	24
Maximum output current, A	540
Stored energy, kJ	32
Weight, kg	8,2
Overall dimensions LxWxH, mm	176x176x203
IP Code according to IEC 60529:2013	IP67
Ambient operating temperature, °C: for the module in the conventional version for the module in the Arctic version	 -40...+60 -55...+45

FEATURES AND BENEFITS

The 24M10000 module reduces battery requirements, specifically CCA, by allowing:
- To use batteries that have 2-3 times smaller capacity
- To double the battery lifetime
- To operate reliably in harsh climates.

The installation of the module is straightforward (plug and play) and does not require any replacement, maintenance, or repair throughout vehicle lifetime.

The use of the module is economically justified for the following reasons:
- The cost of purchasing and replacing batteries has been reduced.
- In winter, in the far north, the need for continuous engine operation during parking has been eliminated.

PATENT PROTECTION

RU: 2596807 167451 183969 US: 10556515
CN: 107614328 9875482 EP: 3290258 (DE, FR, SE)

KAMAZ-6250 SHIFT BUS

IMPLEMENTATION AND TESTING

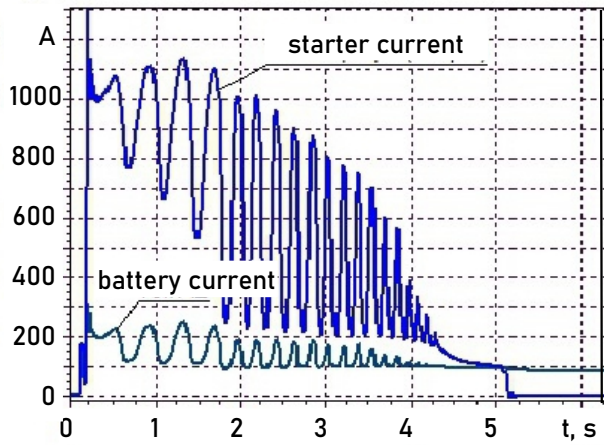
The 24V10000 module, in the conventional version (for temperatures up to -40°C), is mass-produced and is used on KAMAZ-6250 shift buses.

Prototypes of the 24M10000 module in the Arctic version (for temperatures up to -55 °C) are being tested on an all-terrain KAMAZ-6345 vehicle. In this configuration, two modules are connected in parallel, which increases the maximum inrush current.

The oscillograms of the starter and battery current for this connection option demonstrate the ability to start a diesel engine at extremely low temperatures without pre-conditioning the battery.

STARTING A 450 HP DIESEL ENGINE

Current waveforms at -50°C:
Two 24M10000 modules provide 80% of the starter current.



KAMAZ-6345 ARCTIC ALL-TERRAIN VEHICLE

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