

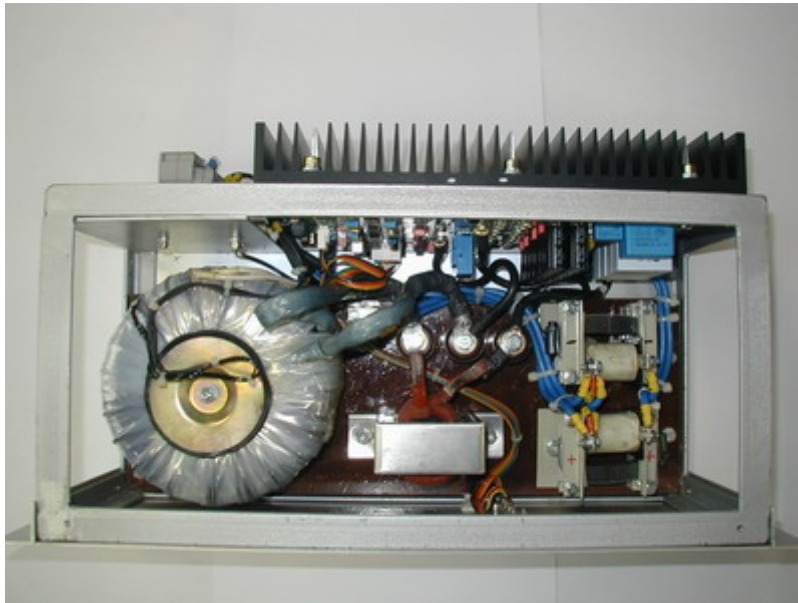
## HVR converter SP 220/24 used for supplying appliance loads in passenger cars

### Customer:

Minel ELVO, Belgrade, Serbia  
(Serbian Railways)

### Salient features:

Input voltage: **24V DC (16.8V .. 30V DC)**  
Output voltage: **230V AC, +/-1%, 50Hz**  
Rated power: **800VA continuous, 3.3kVA peak**



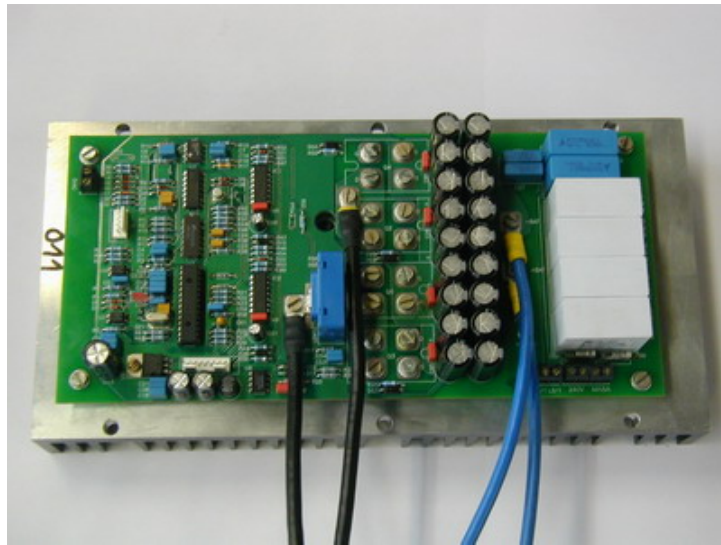
### Product description:

HVR supplies appliance units such as refrigerators and similar, used in passenger cars and restaurant-cars. At the same time, HVR may supply a limited number of passenger gadgets running on 220V 50Hz, such as the mobile phone battery chargers and portable computers. The loads such as refrigerators include mains operated single phase induction motors with very large inrush currents. In order to withstand a relatively large startup current, HVR provides the overload capability which exceeds the rated load by 4 times.

Thermal management is designed to withstand a continuous load of 800VA and an overload of 3.3 kVA. HVR is based on Cool-FET technology and RISC processor real time control. Besides standard protections, software includes the thermal model of active and passive components within the power section. In such a way, the operation at the highest possible ambient temperatures is provided without damage to vital components or their accelerated aging.

The unit is shipped in several mechanical configurations, suitable for installation on the roof, or inside the vehicle/car.

Communication includes RS485 physical layer and the MODBUS protocol.



➤ **involvement:**

Complete hardware and software design. Power section concept & design, design of the power and the control hardware, design of the RISC processor control & communication software. Resolution of railway norms issues.