

Railway application inverter for the on-board passenger car HVAC

Customer:

Minel ELVO, Belgrade, Serbia
(Serbian Railways)



Product description:

HVAC units in passenger cars and the train-conductor compartments are supplied from 24V, 72V or 110V batteries. In particular, such converter is needed in railway cars used with diesel locomotives, but also in city transportation electrical vehicles. Power converted is needed to provide 220V 50Hz, with continuous load of 3 kW, and peak load of 10 kW over several seconds, while the HVAC compressors and blowers are starting.

Converter is based on Cool-FET technology and RISC processor real time control. The PWM runs at 10 kHz. 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.