

DESIGN

The rectifier electrical circuitry is installed in a hermetic and durable aluminium enclosure, finished by powder coating. The enclosure houses the following:

- The back wall carries a high-efficiency heat sink with 3 units of double IGBT power modules, configured into a 6T three-phase AC inverter; the heat sink provides effective cooling of the power processing components with ambient air,
- The left hand wall carries a TS35 mounting rail with connection terminals interfaced with the vehicle onboard systems,
- The back wall features sealing glands for the connection lines of the onboard systems.

The removable front panel grants service access to the inverter interior. The enclosure corners are fitted with four $\varnothing 11$ openings for mounting the device to the vehicle frame.

OPERATION

The input voltage is supplied from the locomotive auxiliary rectifier output to the power input terminals; the current draw is measured/monitored with a current sensor. The input capacitors isolate the voltage in downstream power lines from interference and transient variations. The DC to 3-phase AC converter section is a three-phase TD bridge, comprising high-current double IGBT power modules, installed on a high-efficiency heat sink. The line current output sensors protect the AC inverter circuitry against overcurrent and shorting of the compressor/fan lines in the onboard systems. The power line installed on the heat sink is cooled with an ambient air stream, forced by two fans at the heat sink bottom. The heat sink over temperature protection is a temperature sensor, the output signal of which is monitored by the control system. The inverter is controlled and monitored over CAN/CAN Open.

BLOCK DIAGRAM

