



Multifunction Vehicle Bus Remote I/O Master Module (MVR)

EN 50155
EN 45545
IEC 61375-3-1

MODULE FUNCTIONS

Trainnet® Multifunction Vehicle Bus Remote I/O Master Module (MVR) operates as a gateway between MVB and the modules connected to the EKE I/O bus. The MVR module is designed to ensure reliable data transmission on board a train. The MVR module provides a redundant MVB interface, fully compliant with the IEC 61375-3-1 Train Communication Network (TCN).

KEY FEATURES

The purpose of MVB RIOM system is to provide I/O interfaces to remote locations, utilizing MVB. The system consists of an MVR module, power module, backplane and I/O modules, such as AIO, AIM, AOM, DIO, DRO, PTI and TSI. The central system, which connects to MVB RIOM is called the Vehicle Control Unit (VCU). The VCU is a system with at least one CPU Module and an MVB module. The configuration of MVR RIOM is fully automated; it automatically detects the I/O modules, and configures itself as an MVB slave, with MVB Port Data interfaces of all connected I/O modules.

The MVB module configuration is done through the Gateway CPU, and the MVB reads it through its shared memory at the start-up of the system. For the MVB module, the configuration is read-only and it is managed by the CPU software. If any changes are made through the debug terminal, the original configuration is retained when the module is reset. The module has a Medium Attachment Unit (MAU) with an MVB FPGA which internally supports the EMD (MVR3297B) or ESD (MVR4570B) interface.

To ensure uninterrupted functionality of the Multifunction Vehicle Bus, the bus is duplicated: there are two lines through which the devices transmit data. If one line is temporarily out of order, the other line can take over and full redundancy is ensured. In this way, the flow of important data can continue without interruption even in the case of potential problems.

OPTIONS

Physical interface. There are MVR module versions available with two physical interface options: one for MVB

Electrical Short Distance RIOM (MVR4570B) up to 20 m and one for MVB Electrical Medium Distance RIOM (MVR3297B) up to 200 m cable lengths.

TECHNICAL SPECIFICATIONS

Dimensions (W x H x D)

4 TE x 3 U x 179 mm

Weight

155 g

Input Power

5 V DC $\pm 5\%$ (1 A max., 0.5 A typ.)

Temperature Range (operational)

-40 °C...+70 °C

MTBF (40 °C ambient temperature)

1 620 000 h (MVR3297B, left picture)

1 550 000 h (MVR4570B, right picture)

Physical Medium

Electrical Medium Distance (EMD, MVR32907B)

Electrical Short Distance (ESD, MVR4570B)

Data Rate

1.5 Mbit/s; Manchester encoding