



MESA 23: GSM-R Cab Radio

MTRS 1 RS

The MTRS 1 RS is a terminal unit for the purpose of train radio, shunting radio and data applications which operates in GSM-R networks. It fulfils the European requirements for use in rail vehicles.

The MTRS 1 RS consists of the digital transmission and receiving device, the controls, the interface modules and the power supply. The CON/IFOT module controls the radio module, manages the priority of the calls, controls the operating devices, the additional data applications and the interface modules.

The terminal unit operates in the 900 MHz GSM frequency spectrum in the following frequencies:

- Transmitting frequency range: 876 to 915 MHz (873 to 915 MHz)*
- Receiving frequency range: 921 to 960 MHz (918 to 960 MHz)*

In joint operation with operating device MMIS, handsets and loudspeakers, the MTRS 1 RS realises full train radio functionality. This standard model can be equipped with the following assemblies:

- **IFS module** with 2 serial interfaces for data transmission

- **IFS-A module** with 1 serial interface for data transmission and 1 interface to connect external radio devices
- **UIC module** for connecting to the train's internal UIC line according to UIC 568 (PA/Intercom)

MESA 23:

The universal system architecture contains uniform and standardised interfaces and sub-assemblies conceived as 19" plug-in printed circuit boards. Thereby an easy and fast exchange of the sub-assemblies and the possibility of using the sub-assemblies in all equipment variants and types is guaranteed.

The consistent replacement assemblies ensures cost-optimised spares inventory to permit fast and efficient repair and minimized training needed by the maintenance personnel.

* with MT5E

Technical Specification

| Power Supply | | Dimensions+ Weight | |
|-----------------------------------|---|--------------------|---------------------------|
| Input voltage | nominal 24, 36, 48, 72 or 110 VDC | Construction | Module rack (3 U / 84 HP) |
| Tolerances | according to DIN EN 50155 | Width | 482.6 mm |
| Interruption | according to DIN EN 50155, Class S1 (no interruption) | Height | 132.6 mm |
| Maximal input power | nominal 165 W (calculated) | Depth | 243 mm |
| Maximal power consumption | 1.5 A to 6.9 A (depending on voltage 110 VDC to 24 VDC) | Weight | max. 6 kg |
| Environmental Conditions | | | |
| Protection class | IP 20 according to DIN EN 60529 | | |
| Vibration and shocks | in compliance with DIN EN 50155 | | |
| EMC | in compliance with DIN EN 50121-3-2 and DIN EN 50155 | | |
| Climatic Conditions | | | |
| Operating temperature range | -25 °C to +70 °C | | |
| Storage temperature range | -40 °C to +70 °C (in original package) | | |
| Maximal gradient | ± 1 °C/min of ambient temperature | | |
| Maximal humidity | 75 % in annual average | | |
| Relative humidity | 95 % on max. 30 days per year | | |
| Altitude and pressure fluctuation | -100 m to 1,800 m above sea level | | |
| Interfaces | | | |
| Operating devices MMIS | 2x 26-pin HD-D-Sub | | |
| Antenna connection | TNC female | | |
| UIC line | 25-pin D-Sub (option) | | |
| Digital input and output | 15-pin HD-D-Sub | | |
| RS422 | 2x 15-pin HD-D-Sub (option) | | |
| Service, diagnostics | 9-pin D-Sub | | |
| Miscellaneous | power supply, protective earth conductor | | |
| Note | | | |
| Designation scheme | MTRS[1: GSM-R] [design] / [nominal input voltage] / optional: UIC / optional: IFS | | |
| System identification | MESA 23-05: including central unit (MTRS 1 RS), operating unit(s) MMIS, handset(s), loudspeaker(s) and cables | | |

