



MESA 23: GSM-R Cab Radio

MTRS 1 RI

The MTRS 1 RI 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 RI 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 RI 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)

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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 MTSE



Technical Specification

Power Supply		Dimensions+ Weight	
Input voltage	nominal 24, 36, 48, 72 or 110 VDC	Construction	Module rack (6 U / 32 HP)
Tolerances	according to DIN EN 50155	Width	167.25 mm
Interruption	according to DIN EN 50155, Class S1 (no interruption)	Height	307.7 mm
Maximal input power	nominal 165 W (calculated)	Depth	233.25 mm
Maximal power consumption	1.5 A to 6.9 A (depending on voltage 110 VDC to 24 VDC)	Weight	max. 7 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 23-08: including central unit (MTRS 1 RI), operating unit(s) MMIS, handset(s), loudspeaker(s) and cables		

