MESA 23: Dual Mode Cab Radio

MTRS 1+A BSH

The MTRS 1+A BSH is a terminal unit for the purpose of train radio, shunting radio and data applications which operates in GSM-R networks and in the analogue radio networks in accordance with UIC 751-3 (450 MHz). It fulfils the European requirements for use in rail vehicles.

The MTRS 1+A BSH consists of the digital and analogue 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 modules for analogue train radiotelephony, the additional data applications and the interface modules.

The terminal unit operates in the 900 MHz GSM frequency range 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)*

Together with operating device MMIS, handsets and loudspeakers, the MTRS 1+A BSH 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.

* mit MT5E

Technical Data

Power Supply	
Input voltage	nominal 24, 36, 48, 72 or 110 V_{DC}
Tolerances	according to DIN EN 50155
Interruption	according to DIN EN 50155, Class S1 (no interruption)
Maximal input power	nominal 365 W (calculated)
Maximal power consumption	3,3 A to 15,2 A (depending on voltage 110 V_{DC} to 24 V_{DC})

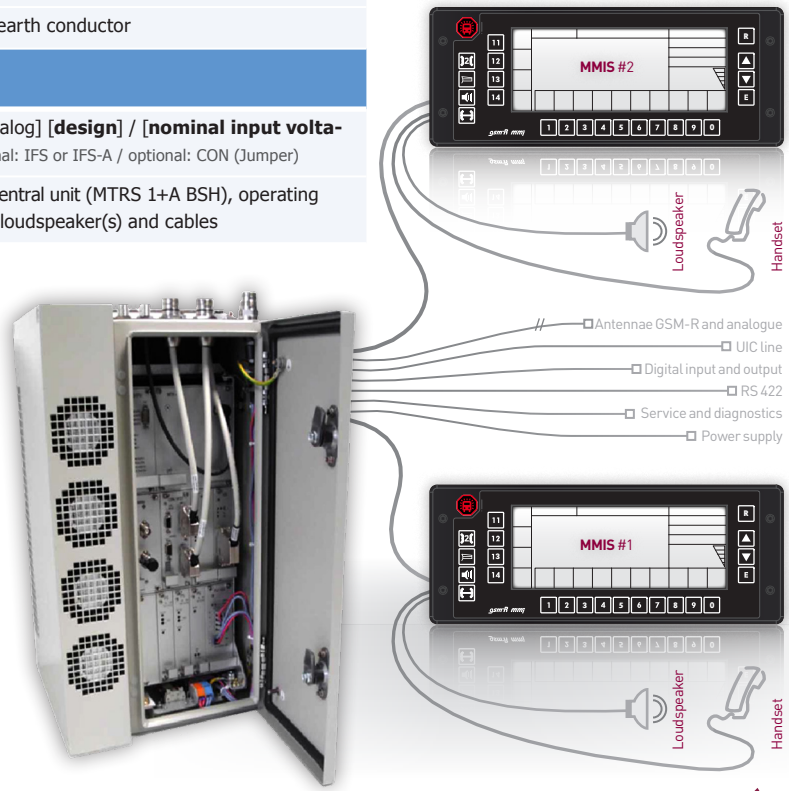
Dimensions + Weight	
Construction	enclosed housing
Width	300 mm
Height	530 mm
Depth	280 mm
Weight	max. 31 kg

Environmental Conditions	
Protection class	IP 54 according to DIN EN 60529
Vibration and shocks	according to DIN EN 50155
EMC	according to DIN EN 50121-3-2 and DIN EN 50155

Climatic Conditions	
Operating temperature range	-25 °C to +55 °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 19-pin round female connector
Antenna connection	2x TNC female (analogue and GSM-R)
UIC line	9-pin round female connector (option)
Digital input and output	16-pin round female connector
RS422	IFS: 2x / IFS-A: 1x 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; +**A**: analog] [**design**] / [**nominal input voltage**] / optional: UIC / optional: IFS or IFS-A / optional: CON (Jumper)
System identification	**MESA 23-01:** including central unit (MTRS 1+A BSH), operating unit(s) MMIS, handset(s), loudspeaker(s) and cables



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