



## Portable GSM-R Train Radio Device

### GTM+

The GTM+ is a portable terminal unit for the purpose of train radio, shunting radio and data applications which operates in the GSM-R network. It fulfils the European requirements for use in rail vehicles.

The GTM+ 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, regulates the priority of the calls, controls the operating devices, the additional data applications and the interface modules. The GTM+ realises full train radio functionality by integration of an operating device MMIS, handset and loudspeaker.

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)\*

The **GTM (GSM-R Terminal for Migration)** was developed for the purpose of the migration phase originally intended for temporary fixed use. The connection of an external MMIS is possible.

The train radio device, combines the technology and maintainability of the reliable train radio system MESA 23 and a space-saving IP42 variant.

### 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 to 110 V <sub>DC</sub>	Construction	enclosed housing
Tolerances	according to DIN EN 50155 and DIN EN 60077	Width	308 mm total 316 mm
Interruption	according to DIN EN 50155, Class S1 (no interruption)	Height	246 mm total 276 mm
Maximal input power	nominal 165 W (calculated)	Depth	280 mm total 345 mm
Maximal power consumption	10 A at 24 V <sub>DC</sub> nominal voltage	Weight	15 kg
Environmental Conditions			
Protection class	IP 42 according to DIN EN 60529 (except handset and loudspeaker)		
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 +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	26-pin HD-D-Sub		
Antenna connection	TNC female		
Charging unit	9-pin D-Sub (for optional GSM-R mobile phones)		
Digital input and output	15-pin HD-D-Sub		
RS422	115-pin HD-D-Sub		
Service, diagnostics	9-pin D-Sub		
Miscellaneous	power supply, protective earth conductor		
Hinweise			
Mounting	Mounting frame for installation in the driver's cabin is available. Not scope of the delivery, information on request.		
System identification	<b>MESA 23-06:</b> including central unit (GTM/GTM+) with operating unit(s) MMIS, handset(s), loudspeaker(s) and cables		

