



MESA 23: GSM-R Cab Radio

MTRS 1 BC

The MTRS 1 BC 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 BC is the main component of a digital train radio system. It consists of the digital transmission and receiving device, the controls, the interface board for external devices and the internal power supply. The CON-BC board controls the radio module, manages the priority of the calls, controls the operating devices MMIS, the additional data applications and the interface boards.

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)*

In joint operation with operating device MMIS, handsets and loudspeakers, the MTRS 1 BC realises full train radio functionality.

The installation of a SIM card suitable for train radio as well as an appropriate DC/DC converter are required for the operation of the MTRS 1 BC

MESA 23:

The universal system architecture of that reliable and widely-used cab radio family contains uniform and standardised interfaces and components.

The MTRS 1 BC generally integrates standard components of the cab radio family MESA 23 and thereby benefit from the advantages of a strong demanded and already in high quantities sold system. Because of its compactness and protection class it is the smallest replaceable unit itself.

* with MT5E

Technical Specification

Power Supply		Dimensions + Weight	
Input voltage	24 ... 110 V _{DC} (via DC/DC converter)	Construction	closed cassette 51 TE / 3 HE acc. to IEC 60297
Connection type	Connection n° 16 according to EN 50121-3-2 Tab. A2	Width	258.7 mm
Interruption	(23.5 to 30) V _{DC}	Height	128.4 mm
Maximal input power	6 A	Depth	238 mm
Maximal power consumption	max. 150 W (calculated with two operating devices)	Weight	5.6 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 +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	(MMI 1, MMI2)
Service and diagnostics	9-pin D-Sub	(SERVICE)
Antenna	TNC female	(ANT 2)
UIC line	25-pin D-Sub	(ICIF)
Digital input and output	15-pin HD-D-Sub	(DATA IN/OUT)
RS422 / AF	1x 15-pin HD-D-Sub / 1x 25-pin D-Sub	(IFS / IFSV)
Miscellaneous	power supply, protective earth conductor	(PS), -

Note	
Designation scheme	MTRS[1: GSM-R] [design]
System identification	MESA 23-09: including central unit (MTRS 1 BC), operating unit(s) MMIS, handset(s), loudspeaker(s) and cables

