

Operating Device

## MMIC-1 + MMIC-3



The operating device MMIL as part of the train radio system MESA 26 is designed for the menu-driven operation of digital and analogue train radio. It fulfils the requirements for the operation on rail-vehicles and it is designed for the console installation in the driver's cabin. The driving crew is able to carry out divers communication tasks with this MMIC in combination with a handset and a cabin loudspeaker.

### OPERATING CONCEPT

Funkwerk's MMIs are developed in accordance with the specification as well European standards. They are characterised by its innovative and intuitive ease of use. Except for permanently reachable key functions our MMIs are mainly controlled by softkeys to facilitate its use and to provide the flexibility for functional adaptations without needed hardware modifications.

### KEYS

The DIN CLC/TS 50459-5:2008-05; VDE V 0831-459-5:2008-05 Teil 5 was used as basis for the design of the keyboard symbols.

The manifold railway specific functions are controlled by the keyboard consisting of 10 hard keys and 14 softkeys.

**Hard keys:** Keys with fixed functional allocation independent from the current menu level.

The following functions are realised by the hard keys:

- » Emergency call
- » Call to secondary controller
- » Call to conductor
- » Call to train public address
- » Train to train call
- » Direction button up
- » Direction button down
- » Enter button
- » Reset of the train radio system
- » Menu

All other operating functions will be activated with softkeys.

**Softkeys:** The functional allocation of the softkeys is given by the direct and adjacent area of the display and depends on current menu level of the radio system.

A fixed functional allocation at the same softkeys in the menu levels and an optimal display size allow an easy handling of all operating activities by the train driver.

## TECHNICAL DATA

### DIMENSIONS / WEIGHT

Construction	closed housing
W x H x D	[296 x 116 x 118] mm
Weight	2.1 kg

### DISPLAY

Visible range	[171 x 61] mm
Resolution	[800 x 480] pixels
Reading angle at 25 °C	vertical: ±80°, horizontal: ± 80° (at CR ≥ 10)

### ENVIRONMENTAL CONDITIONS

Protection class	front: IP54 according to DIN EN 60529 rear side: IP44 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

## TECHNICAL DATA

### 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	according to DIN EN 50155
Altitude and pressure fluctuation	-100 m to 1800 m above sea level

### INTERFACES

X1: central unit / CR 26	25-pin D-Sub
X2: handset	9-pin D-Sub
X3: loudspeaker	9-pin D-Sub
X4: digital Input and Output	9-pin D-Sub
X5: RS422 (data application)	15-pin HD-D-Sub
Miscellaneous	brightness sensor, protective earth conductor

### POWER SUPPLY

Input voltage	24 / 48 VDC (on board power)
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