



# OPERATING DEVICE MMIC-1 AND MMIC-3

## HIGHLIGHTS AND TECHNICAL INFORMATION

Traditional. Innovative. SOLUTIONS.





The operating device **MMIC** 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.

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.

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.

# HARDKEYS

- ▶ 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.

# TECHNICAL DATA

## DIMENSIONS & WEIGHT

CONSTRUCTION	closed housing
HEIGHT	116 mm
WIDTH	296 mm
DEPTH	81 mm
WEIGHT	2.1 kg

## DISPLAY

VISIBLE RANGE	171 x 61 mm
RESOLUTION	800 x 480 pixels
READING ANGLE AT 25 °C	vertical: $\pm 80^\circ$ , horizontal: $\pm 80^\circ$ (at CR $\geq 10$ )

## 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

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## CLIMATIC CONDITIONS

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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

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## INTERFACES

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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

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## POWER SUPPLY

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INPUT VOLTAGE	24 / 48 VDC (on board power)
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