Operating device

MMIS

The operating device MMIS as part of the train radio system MESA 23 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. With the use of handset and a loudspeaker the driving crew is able to carry out diverse communication tasks.

OPERATING CONCEPT

Funkwerk's MMIs are developed in accordance with the specification as well as to 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 CENELEC-Standard "MMI Symbols for ERTMS/ETCS/EIRENE-MMI" was used as basis for the design of the keyboard symbols.

The railway specific functions are controlled by the keyboard consisting of 9 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

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- Train to train call
- Direction button up
- Direction button down
- Enter button
- Reset of the train radio system

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	3.5 kg

DISPLAY

Visible range	(171 x 61) mm
Resolution	(360 x 128) pixels
Reading angle at 25 °C	vertical: -60° to +40°, horizontal: -40° to +40°

ENVIRONMENTAL CONDITIONS

Protection class	front: IP54 according to DIN EN 60529 rear side: IP41 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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TECHNICAL DATA

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

INTERFACES

X1: central unit	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/IFS)	15-pin HD-D-Sub
X6: charging unit	9-pin D-Sub
Service	IrDA with maximal 115.2 kBit/s
Miscellaneous	brightness sensor, protective earth conductor

POWER SUPPLY

Input voltage	24 VDC (on board power)
Charging unit for mobile	output voltage: (12.0 ± 0.5) VDC maximum output current: 300 mA

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