Operating Device

MMIL

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. With the use of handset and a loudspeaker the driving crew is able to carry out diverse communication tasks. It can be equipped optionally with a handsfree system featuring echo compensation and noise cancelling.

OPERATING CONCEPT

Funkwerk's operation devices 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.

The design of the key symbols is based on DIN CLC/TS 50459-5:2008-05; VDE V 0831-459-5:2008-05 part 5.

The MMIL has a 10" color touch display with protective glass and a keyboard with 6 keys with dedicated function.

The following functions are realised by the hard keys:

- » Emergency call
- » Call to secondary controller
- » Call to conductor
- » Passenger announcement
- » Train to train call
- » Power button

All other operating functions will be controlled by softkeys.

TECHNICAL DATA

DIMENSIONS / WEIGHT

Construction	closed housing
B x H x T	(315 x 215 x 69.2) mm incl. Hands-free module
Weight	3.0 kg

DISPLAY

Design	transmissive TFT colour LCD with touch function
Effective visible surface	(216.96 x 135.6) mm
Resolution	(1280 x 800) Pixel
Reading angle at 25 °C	vertical: ±85°, horizontal: ±85° (at CR ↗ 10)

ENVIRONMENTAL CONDITIONS

Protection class	front: IP65 according to DIN EN 60529 rear side: IP20 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	OT3: -25 to +70 °C
extended temperature range	ST1: OT3 +15 °C (at switch-on for max. 10 min)
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 EN 50155
Altitude and pressure fluctuation	-100 m to 1.800 m above sea level

TECHNICAL DATA

INTERFACES

Central device MESA 26 (IFOT)	25-pin D-Sub male
Microphones (Gooseneck, hands-free microphone)	9-pin D-Sub female
Handset, loudspeaker, dig. I/O	25-pin D-Sub female
Hands-free module	25-pin D-Sub female
RS422 (Data application/IFS)	15-pin D-Sub female
Ethernet	8-pin M12 female (X coding)
Miscellaneous	Protective ground

INTERFACES FRONT

USB Port	USB Typ A	charging power 1.5 A
Bluetooth	BT 4.2	

POWER SUPPLY

Nominal input voltage	optionally 24 or 48 VDC
	(as standard via central unit with 48 VDC)[1]

[1] only possible for one MMIL and for a cable length ≤40 m with a cable cross-section of 0.75 mm². For a second MMIL or for cable lengths >40 m with a cable cross-section of 0.75 mm², an external power supply via DC/DC converter is necessary in consultation with the manufacturer.