

5G NR standalone radio module

NRM-1



The next generation of cab radios will be based on a data transmission system with extremely high data throughput, exceptionally low communication latency with higher security, which can use and derive from the currently available commercial 5G networks. Based on many years of experience in the fields of GSM-R, analogue train radio and LTE-based radio modules, Funkwerk has developed a 5G modem with processor unit for the next generation of train communication.

5G ENABLES RAILWAY 4.0

The NRM-1 radio module is a transmitting and receiving unit for data transmission in 3G/4G and 5G networks.

It is used for data radio communication between stationary equipment and mobile radio equipment or between mobile radio equipment. In addition to the in-built modem, it has an extremely powerful processor in a housing suitable for rail vehicles.

The device is designed for use on rail vehicles and is not intended for private use.

HIGHLIGHTS

- » Supports 3GPP 5G band n78 (3500 MHz) and LTE
- » Temperature class EN 50155 OT1 (-25 to +55°C)
- » Wide-range power supply from 24 to 110 VDC
- » Powerful quad-core Arm® Cortex® CPU
- » 2x 1 Gbit/s Ethernet Interfaces
- » Multi-purpose I/O Interface
- » Audio and RS422 Interfaces
- » SIM and SD-Card Slots
- » GNSS Support

TECHNICAL DATA

DIMENSIONS / WEIGHT

Construction	enclosed housing
Width	106 mm
Height	150 mm
Depth	190 mm
Weight	max 2 kg

POWER SUPPLY

Input voltage	24 V to 110 V DC (tolerances according to EN 50155)
Interruption	S1 (no interruption) according to EN 50155
Tolerances	according to DIN EN 50155
Maximal power consumption	2 A on voltage 24 - 110 V
typical power consumption	< 20 W

FIRE PROTECTION PROPERTIES

EN 45545-2	HL3
EN 45545-5	OC1 to OC4

ENVIRONMENTAL CONDITIONS

Protection class	IP20 according to EN 60529
Vibration and shocks	according to 50155
EMC	according to EN 50121-3-2 and EN 50155

TECHNICAL DATA

CLIMATIC CONDITIONS

Operating temperature range	-25 °C to +55 °C
Storage temperature range	-40 °C to +70 °C
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 1800 m above sea level
