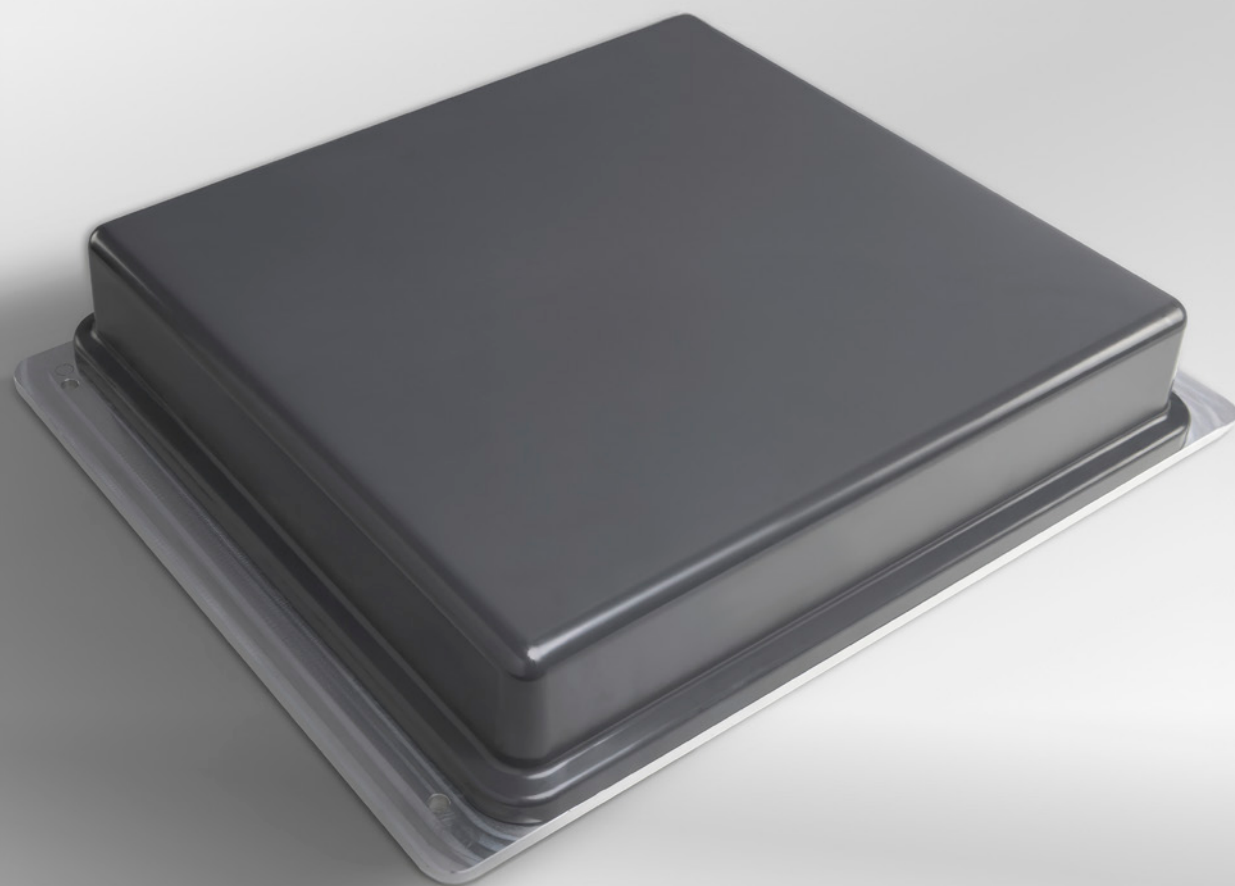




FUNKWERK ANTENNA FOR TRAIN RADIO

HIGHLIGHTS AND TECHNICAL INFORMATION

Traditional. Innovative. SOLUTIONS.



HIGHLIGHTS

This dual-polarised, omni-directional cellular 2x2 MIMO rooftop antenna is designed to meet the special requirements of railway applications including high current and high voltage protection. It allows two GSM-R radio modules to be operated simultaneously without interference. This frees up roof space for a dedicated FRMCS antenna, which will be required for the migration to FRMCS. Once the migration is complete, the FANT antenna will demonstrate its full potential and support the entire regulated European FRMCS spectrum.

- ▶ 2-Port Railway rooftop antenna for cellular bands
- ▶ Optionally available with embedded dual-band GNSS (3-Port) antenna with integrated LNA
- ▶ Enables 2x2 MIMO with true polarization diversity for high data throughput
- ▶ Average combined condition number on the supported cellular bands of <10 dB
- ▶ Supporting 2G/3G/4G/5G bands between 694-4200 MHz
- ▶ Rugged design meets EN 50155 railway standard
- ▶ Fire retardant acc. to EN 45545-2 and NFPA130
- ▶ High voltage and high current protection for use under catenary lines
- ▶ Suitable for installation on high-speed trains with a maximum speed of 500 km/h
- ▶ 4x composite sealing washers included for silicone-free sealing of the mounting screws

TECHNICAL DATA

DIMENSIONS & WEIGHT

HEIGHT	90 mm
WIDTH	508.7 mm
DEPTH	411.7 mm
WEIGHT	approx. 7.4 kg (without packaging)

ENVIRONMENTAL DATA

TEMPERATURE FOR OPERATION, STORAGE & TRANSPORT	-55 to 85 °C
DEGREE OF PROTECTION	IP69
FLAMMABILITY RATING	DIN EN 45545-2 R24 HL3
SOLAR RADIOATION	UL 746C, F1
ENVIRONMENTAL TESTS ACC.	EN50155:2022-06

MATERIAL DATA

RADOME COLOUR & MATERIAL	RAL 7043 (dark grey), polycarbonate - EXL
BASE PLATE COLOUR & MATERIAL	grey / aluminium

GENERAL DATA

HIGH-VOLTAGE-PROTECTION	EN50124-1 (3.8 kV DC /27.5 kV AC, 1min)
HIGH-CURRENT-PROTECTION	UIC 533 (40 kA, 0.125 s)
CORROSION	Low corrosion design acc. to MIL-DTL-14072(E), 96 hours salt spray test
MOUNTING	Shall be installed in longitudinal position to the wind/driving direction

ELECTRICAL DATA LNA (OPTIONAL)

LNA GAIN*	38 dB
LNA NOISE FIGURE DB*	2
LNA CURRENT CONSUMPTION*	45 mA
LNA IS CONNECTED TO	Port 3
EMC	EN 50121-3-2 (2016)
LNA INPUT VOLTAGE RANGE	3.0 to 5.5 V
TOTAL GAIN @90° ELEVATION	38 dBiC

* The values are given for a 5 V operating voltage and may differ slightly for a lower voltage.

PRODUCT CONFIGURATION / ELECTRICAL DATA

	GSM-R	BAND 1	BAND 2	BAND 3	L5	L1
POLARISATION	Vertical	Vertical	Vertical	Vertical	GNSS 1	GNSS 2
FREQUENCY (MHZ)	873 - 925	694 - 960	1425 - 2690	3300 - 4200	1164 - 1215	1559 - 1610
VSWR TYP.	<1.6	1.9	2.0	1.9	1.7	1.7
IMPEDANCE (OHM)	50	50	50	50	50	50
GAIN (DBI)	7	7	8	9		
COMPOSITE POWER MAX. (W)	80	80	80	80		
AMBIENT TEMPERATURE (°C)	25	25	25	25	25	25
PORT ISOLATION (DB) TYP.	40	35	29	40		

	GSM-R	BAND 1	BAND 2	BAND 3
POLARISATION	Horizontal	Horizontal	Horizontal	Horizontal
FREQUENCY (MHZ)	873 - 925	694 - 960	1425 - 2690	3300 - 4200
VSWR TYP.	<1.6	1.9	2.0	1.9
IMPEDANCE (OHM)	50	50	50	50
GAIN (DBI)	7	7	9	9
COMPOSITE POWER MAX. (W)	80	80	80	80
AMBIENT TEMPERATURE (°C)	25	25	25	25
PORT ISOLATION (DB)	40	35	29	40

PORTS

	PORT 1	PORT 2	PORT 3 (OPTIONAL)
PORT NAME	Vertical	Horizontal	GNSS
CONNECTOR	N, jack (female)	N, jack (female)	TNC, plug (male)
CABLE TYPE	RADOX_RF_142	RADOX_RF_142	RADOX_RF_316_D
CABLE LENGTH	0.46 m	0.4 m	0.4 m
POLARIZATION	Vertical	Horizontal	Circular right
DC GROUNDED	Yes	Yes	No

CONNECTIONS

	BAND 1	BAND 2	BAND 3
PORT 1	All bands are available at port 1 and port 2		
PORT 2			



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