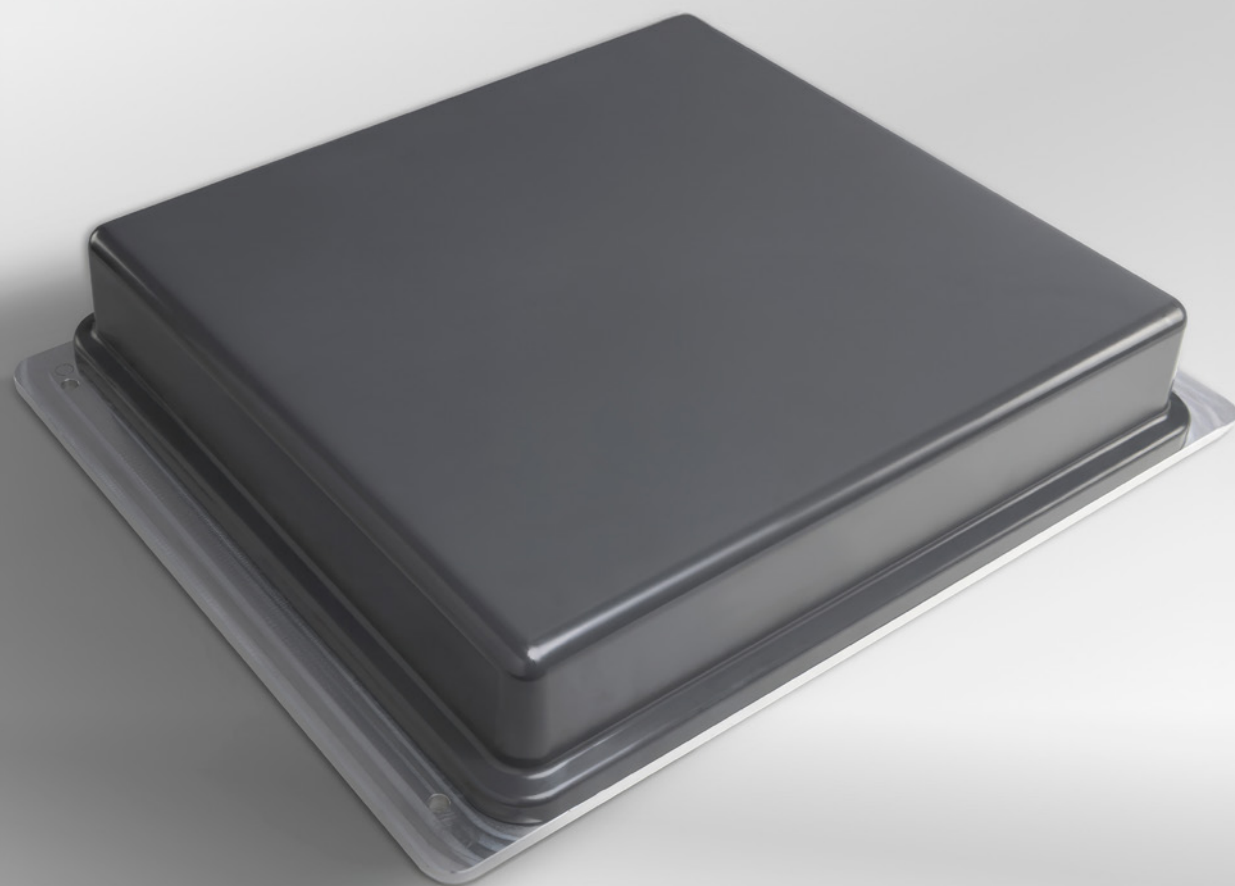




FUNKWERK ANTENNA FOR TRAIN RADIO

HIGHLIGHTS AND TECHNICAL INFORMATION

Traditional. Innovative. SOLUTIONS.



HIGHLIGHTS

This dual-polarised, omni-directional cellular 2x2 rooftop antenna is designed for wireless applications to meet 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
- ▶ 3-Port GNSS (optional)
- ▶ 2x2 MIMO with true polarisation diversity for high data throughput
- ▶ Supports 2G/3G/4G/5G bands between 694-4200 MHz
- ▶ Average combined condition number on the supported cellular bands of <10 dB
- ▶ Embedded dual-band GNSS antenna with integrated LNA
- ▶ Rugged design, meets DIN EN 50155 railway standard
- ▶ Fire retardant according to DIN EN 45545-2 and NFPA130
- ▶ High voltage and high current protection for use under catenary lines
- ▶ Suitable for high speed trains with a maximum speed of 500 km/h
- ▶ Composite sealing washers included for silicone-free sealing of the mounting screws

TECHNICAL DATA

DIMENSIONS & WEIGHT

HEIGHT	90 mm
WIDTH	489 mm
DEPTH	392 mm
WEIGHT	7.5 kg (without packaging)

ENVIRONMENTAL DATA

TEMPERATURE FOR OPERATION, STORAGE & TRANSPORT	-55 to 85 °C
DEGREE OF PROTECTION	IP69
FLAMMABILITY RATING	according to DIN EN 45545-2 R24 HL3

MATERIAL DATA

RADOME COLOUR & MATERIAL	RAL 7004 (signal grey), Polycarbonate
BASE PLATE COLOUR & MATERIAL	grey / aluminium

GENERAL DATA

HIGH-VOLTAGE-PROTECTION	no voltage on RF port, if the catenary line touches the antenna
HIGH-CURRENT-PROTECTION	Designed acc. to UIC 533, DC-grounded antenna element
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	according to DIN EN 50121-3-2 (2016)
LNA INPUT VOLTAGE RANGE	3 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	BAND 4
POLARISATION	Vertical	Vertical	Vertical	Vertical	Horizontal
FREQUENCY (MHZ)	873 - 925	617 - 960	1425 - 2690	3300 - 4200	694 - 960
VSWR TYP.	<1.6	1.9	2.0	1.9	1.9
IMPEDANCE (OHM)	50	50	50	50	50
GAIN (DBI)	7	7	8	9	7
COMPOSITE POWER MAX. (W)	80	80	80	80	80
AMBIENT TEMPERATURE (°C)	25	25	25	25	25
PORT ISOLATION (DB)	35	35	31	40	35

	GSM-R	BAND 5	BAND 6	BAND 7	BAND 8
POLARISATION	Horizontal	Horizontal	Horizontal	GNSS 1	GNSS 2
FREQUENCY (MHZ)	873 - 925	1425 - 2690	3300 - 4200	1164 - 1279	1555 - 1610
VSWR TYP.	<1.6	2.0	1.9	1.7	1.7
IMPEDANCE (OHM)	50	50	50	50	50
GAIN (DBI)	7	9	9		
COMPOSITE POWER MAX. (W)	80	80	80		
AMBIENT TEMPERATURE (°C)	25	25	25	25	25
PORT ISOLATION (DB)	35	31	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	0.3 m	0.3 m	0.27 m
POLARIZATION	Vertical	Horizontal	Circular right
DC GROUNDED	Yes	Yes	No

CONNECTIONS

	BAND 1	BAND 2	BAND 3	BAND 4	BAND 5	BAND 6	BAND 7	BAND 8
PORT 1	X	X	X					
PORT 2				X	X	X		
PORT 3							X	X



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Funkwerk Systems GmbH

Im Funkwerk 5 · 99625 Kölleda · Germany

funkwerk.com

