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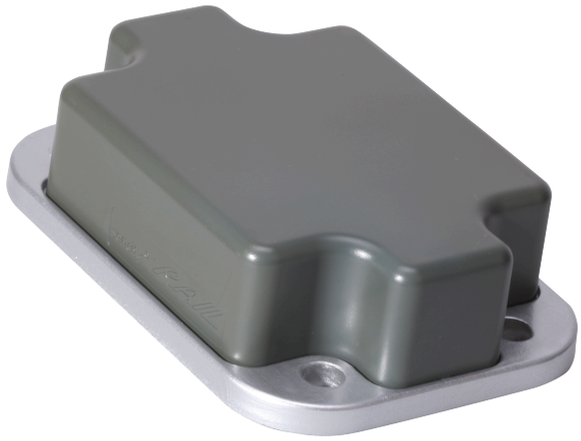
DATA SHEET

SENCITY® Rail Low Profile Antenna with GNSS/LNA

1399.99.0037

Properties

- Railway rooftop antenna for 2G/3G/4G cellular and Wi-Fi 4/Wi-Fi 6 bands
- Multiple Antenna installations support Cellular and Wi-Fi MIMO
- Includes embedded GNSS antenna with integrated LNA supporting GPS L1, Galileo E1, BeiDou B1 and GLONASS G1
- Rugged design, meets EN 50155 Railway Standard
- Fire retardant according to EN 45545-2
- Extremely low profile (40mm)



Electrical data				
	Band 1	**Band 2**	**Band 3**	**Band 4**
Name				
Frequency	790 MHz ... 806 MHz	806 MHz ... 870 MHz	870 MHz ... 960 MHz	1350 MHz ... 2700 MHz
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	2.2	1.8	1.5	2
Gain	5 dBi	5 dBi	5 dBi	5 dBi
Ambient Temperature	25 °C	25 °C	25 °C	25 °C
Composite Power max	200 W	192 W	183 W	123 W

	Band 5	**Band 6**
Name		GNSS
Frequency	4900 MHz ... 6425 MHz	1559 MHz ... 1610 MHz
Impedance	50 Ω	50 Ω
VSWR	2.1	1.8
Gain	8 dBi	
Ambient Temperature	25 °C	
Composite Power max	67 W	

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Electrical remarks	
Remarks	Indicated VSWR values are valid for a metallic ground plane of 0.2 x 0.2m or larger. Indicated gain values will be achieved on a metallic ground plane of 1 x 1 m or larger.The tolerance of the VSWR values is 0.5dB
	High-voltage-protection: no voltage on RF port, if catenary line touches antenna (EN 50124-1, 24 kVAC/1min). High-current-protection: Designed acc. to UIC 533, DC-grounded antenna element protection against lightning and short circuit with catenary lines (EN50388, EN 50122-1, 40kA/0.1sec)

Ports		
	Port 1	**Port 2**
Connector	N, jack (female)	TNC, plug (male)
Polarization	vertical	circular right
DC grounded	Yes	Yes

Connections		
	Port 1	Port 2
Band 1	✓	
Band 2	✓	
Band 3	✓	
Band 4	✓	
Band 5	✓	
Band 6		✓

Electrical data LNA	
LNA is connected to	Port 2
Input voltage	3 V ... 5 V
Current cunsumption	30 mA
Noise figure	1.8 dB
Total gain @90° elevation	30 dBic
Remarks	This Antenna is compliant with the Radio Equipment Directive 2014/53/EU EMC: EN50121-3-2 (2016) ETSI EN 303 413 V.1.1.1 (2017-06) ETSI EN 301 489-1 V2.2.3 (2019-03) ETSI EN 301 489-19 V2.1.1 (2019-04) Values for LNA power consumption, noise figure and gain are given for a 5V operating voltage and may differ slightly for a lower voltage. Antennas with production date prior to 01-Oct-2020 support only GPS bands between 1574.397 - 1576.443 MHz

Mechanical data	
Weight	0.535 kg
Dimensions	40 mm x 100 mm x 145 mm (Height x Width x Depth)
Windload	Wind Speed survival: 500 km/h

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Mechanical data	
Remarks	Corrosion Low corrosion design acc. to MIL-F-14072(E). Mounting Shall be installed in longitudinal position to the wind/ driving direction. Suitable for installation on high speed trains with a maximum speed of 500 km/hr. 4x composite sealing washers included for silicone-free sealing of the mounting screws.

Material data	
Radome material	PC (Polycarbonate)
Radome colour	RAL 7043 (dark grey)
Back plate/base plate material	Aluminum
Back plate/base plate plating	Passivated (Plating)
Back plate/base plate colour	Grey

Environmental data	
Operation temperature	-40 °C ... 85 °C
Storage temperature	-55 °C ... 85 °C
Environment (application)	Outdoor
Ingress protection (IP Rating)	Mated / IP69
Flammability rating	EN 45545-2
Solar radiation	DIN 75220

Environmental remarks
Environmental tests: EN 50155:2022

Additional Information
This product meets the Deutsche Bahn specifications for rolling stock equipment.

Antenna accessories		
Item description	Item number	Product name
9091.99.0257	85068234	SENCITY® Rail - M10 sealing washer kit
9090.99.0062	84098894	SENCITY® Rail mounting plate

Ordering information		
Item description	Item number	Product name
1399.99.0037	84080682	SENCITY® Rail Low Profile Antenna with GNSS/LNA

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