

SENCITY® Rail Antenna with GNSS/LNA

1399.99.0120

Properties

- Railway rooftop antenna for 2G/3G/4G/5G cellular and Wi-Fi 4/Wi-Fi 6 bands
- Multiple Antenna installations support Cellular and Wi-Fi MIMO.
- Rugged design, meets EN 50155 Railway Standard
- Fire retardant according to EN 45545-2 and NFPA-130
- Embedded GNSS antenna with integrated LNA supports GPS L1, Galileo E1, BeiDou B1 and GLONASS G1
- Dedicated grounding contact and Cable conduit support (sold separately)



Electrical data				
	Band 1	Band 2	Band 3	Band 4
Name				
Frequency	694 MHz ... 790 MHz	790 MHz ... 960 MHz	1350 MHz ... 1525 MHz	1710 MHz ... 2700 MHz
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	2	1.5	2.2	1.5
Gain	5 dBi	5 dBi	6 dBi	6 dBi
Ambient Temperature	25 °C	25 °C	25 °C	25 °C
Composite Power max	80 W	80 W	80 W	80 W

	Band 5	Band 6	Band 7	Band 8
Name				GNSS
Frequency	2700 MHz ... 3300 MHz	3300 MHz ... 4900 MHz	4900 MHz ... 6425 MHz	1559 MHz ... 1610 MHz
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	1.5	1.7	1.5	1.8
Gain	8.5 dBi	7 dBi	7.5 dBi	
Ambient Temperature	25 °C	25 °C	25 °C	

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	Band 5	Band 6	Band 7	Band 8
Composite Power max	80 W	80 W	80 W	

Electrical remarks

Remarks	Indicated VSWR values are valid for a metallic ground plane of 0.5 x 0.5m or larger. In the 790-6425 MHz band, Indicated VSWR values are also valid for installations on non-metallic surfaces (no specific ground plane requirements). Indicated gain values will be achieved on a metallic ground plane of 1 x 1 m or larger. High-voltage-protection: no voltage on RF port, if the catenary line touches antenna (EN 50124-1, 27.5 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)
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Ports

	Port 1	Port 2
Connector	N, jack (female)	TNC, plug (male)
Polarization	vertical	circular right
DC grounded	Yes	No

Connections

	Port 1	Port 2
Band 1	✓	
Band 2	✓	
Band 3	✓	
Band 4	✓	
Band 5	✓	
Band 6	✓	
Band 7	✓	
Band 8		✓

Electrical data LNA

LNA is connected to	Port 2
Input voltage	3 V ... 5 V
Current consumption	20 mA
Noise figure	1.6 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 V1.1.1 (2017-06) ETSI EN 301 489-1 V2.2.3 (2019-03) ETSI EN 301 489-19 V2.1.1 (2019-04) Antennas with production date prior to 01-Oct-2020 support only GPS bands between 1574.397 - 1576.443 MHz Values for LNA power consumption, noise figure and gain are given for a 5V operating voltage and may differ slightly for a lower voltage. MTBF (h)- 3000000

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Mechanical data	
Weight	1 kg
Dimensions	90 mm x 100 mm x 256 mm (Height x Width x Depth)
Remarks	Corrosion: Low corrosion design according to MIL-F-14072(E), 96 hours Salt Spray test. 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.

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

Environmental data	
Operation temperature	-55 °C ... 85 °C
Storage temperature	-55 °C ... 85 °C
Transport temperature	-55 °C ... 85 °C
Environment (application)	Outdoor
Ingress protection (IP Rating)	Mated / IP67, IP69
Flammability rating	EN 45545-2 R24 HL3
Solar radiation	UL 746C, FI

Environmental remarks	
Environmental tests: EN 50155:2018-05 Flammability rating: EN45545-2:2013 + A1:2015, NFPA-130:2017 Tested according to ISO 4589-2:2017, NFX 70-100-1:2006, ISO 5659-2:2011.	
Antennas with production date prior to 01-Oct-2020 do not have NFPA-130 compliance.	

Additional Information	
This product meets the Deutsche Bahn specifications for rolling stock equipment. Protected by Patents: US7327320B2, CN1765030B, AU2003218856A1, CA2521771C, SG114406, ZA200508290.	

Antenna accessories		
Item description	Item number	Product name
9091.99.0261	85079842	SENCITY® Rail antenna mounting plate
9091.99.0252	84148131	SENCITY® Rail antenna adapter plate
9091.99.0236	84079593	SENCITY® Rail antenna conduit support Kit
9091.99.0235	84079030	SENCITY® Rail antenna grounding kit

Antenna accessories remarks	
If the band below 790 MHz is used, it is recommended to mount the antenna directly on a metal roof without using any kind of mechanical adapter between antenna and roof.	

Ordering information		
Item description	Item number	Product name
1399.99.0120	84071811	SENCITY® Rail Antenna with GNSS/LNA

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