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DATA SHEET

SENCITY® Rail Antenna with GNSS/LNA

1399.99.0026

Properties

- Railway rooftop antenna for Tetra, DVB-T, 2G/3G/4G/5G cellular and Wi-Fi 4/Wi-Fi 6 bands
- 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 and NFPA-130
- Dedicated grounding contact and Cable conduit support (sold seperately)



Electrical data				
	Band 1	**Band 2**	**Band 3**	**Band 4**
Name				
Frequency	380 MHz ... 694 MHz	694 MHz ... 960 MHz	1350 MHz ... 1525 MHz	1710 MHz ... 2700 MHz
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	1.8	1.8	1.5	1.5
Gain	3 dBi	4 dBi	7.5 dBi	7.5 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	6.5 dBi	7 dBi	8 dBi	
Ambient Temperature	25 °C	25 °C	25 °C	
Composite Power max	80 W	80 W	80 W	

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Electrical remarks	
Remarks	Indicated VSWR values are valid for a metallic ground plane of 0.5 x 0.5m or larger. 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)

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 cunsumption	20 mA
Noise figure	1.6 dB
Total gain @90° elevation	30 dBic
Remarks	MTBF (h): 3000000 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	1.6 kg
Dimensions	154 mm x 100 mm x 256 mm (Height x Width x Depth)
Windload	Wind Speed survival: 500 km/h

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Mechanical data	
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	ASA (acrylic ester-styrene-acrylonitrile)
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	-55 °C ... 85 °C
Storage temperature	-55 °C ... 85 °C
Transport temperature	-55 °C ... 85 °C
Environment (application)	Indoor/Outdoor
Ingress protection (IP Rating)	Mated / IP67, IP69
Flammability rating	EN 45545-2 R24 HL3
Solar radiation	UL 746C, F1
Standards	Railway EN 45545

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

9091.99.0235 Sencity Rail antenna grounding kit
9091.99.0236 Sencity Rail antenna conduit support Kit
9091.99.0261 Sencity Rail antenna mounting plate
9091.99.0252 Sencity Rail antenna adapter plate

Ordering information

Item description	Item number	Product name
1399.99.0026	84069929	SENCITY® Rail Antenna with GNSS/LNA

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