

SENCITY® Rail Antenna

1399.99.0121

Description

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.

Embedded GNSS antenna with integrated LNA.

Supports 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 (optional).

Cable conduit support (optional).



Product Configuration

Technical Data

Electrical Data

	Band 1	Band 2	Band 3	Band 4
Frequency (MHz)	694 - 790	790 - 960	1350 - 1525	1710 - 2700
VSWR	2	1.5	2.2	1.5
Impedance (Ohm)	50	50	50	50
Gain (dBi)	5	5	6	6
Composite power max (W)	80	80	80	80
Ambient temperature (°C)	25	25	25	25

	Band 5	Band 6	Band 7	Band 8
Band Name				GNSS
Frequency (MHz)	2700 - 3300	3300 - 4900	4900 - 6425	1559 - 1610
VSWR	1.5	1.7	1.5	1.8
Impedance (Ohm)	50	50	50	50
Gain (dBi)	8.5	7	7.5	
Composite power max (W)	80	80	80	
Ambient temperature (°C)	25	25	25	

Ports

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

Connections

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

General Data

Indicated VSWR values are valid for a metallic ground plane of 0.5 x 0.5m or larger. In the 790-5935 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.

Electrical Data LNA

LNA noise figure dB	1.6
LNA current consumption (mA)	20

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LNA is connected to
MTBF (h)

Port 2
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)

LNA input voltage range: 3...5V

Total gain @90° elevation: 30 dBiC

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 and GLONASS bands between 1574 - 1610 MHz.

Mechanical Data

Dimensions (mm)
Weight (kg)

90 x 100 x 256 (Height x Width x Depth)
1

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)

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.

Environmental Data

Environmental conditions
Operation temperature (°C)
Storage temperature (°C)
Transport temperature (°C)
IP rating
Flammability rating
Solar radiation
2011/65/EU (RoHS - including
2015/863 and 2017/2102)
Lead-free soldered
WEEE 2012/19/EU
ELV 2000/53/EC
REACH 1907/2006/EC

outdoor
-55 to 85
-55 to 85
-55 to 85
IP67, IP69
EN 45545-2 R24 HL3
UL 746C, F1
compliant acc. Annex III
yes
no special marking needed
compliant
compliant

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.

Material Data

Radome colour
Radome material
Back plate/base plate colour
Back plate/base plate material
Plating

RAL 7043 (dark grey)
PC (Polycarbonate)
grey
Aluminium
Passivated (Plating)

Related Products

9091.99.0235 Sencity Rail Antenna grounding kit

9091.99.0236 Sencity Rail conduit Support Kit

9091.99.0261 Sencity Rail antenna mounting plate

9091.99.0252 Sencity Rail antenna adaptor plate

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 adaptor between antenna and roof.

Related Documents

Mounting instruction
Painting instruction
Security instruction
Outline drawing

DOC-0000295392
DOC-0000256180
DOC-0000278984
DOU-00142537

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Outline drawing 2
3D-model
CE compliancy

DOU-00154160
DOC-0000334491
DOC-0000896953

Additional Information

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

Mouser Electronics

Authorized Distributor

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