Data Sheet

HUBER+SUHNER

SENCITY® Rail Antenna
1399.99.0120

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 790-6425 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.

Electrical Data LNA

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

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LNA is connected to	Port 2
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)
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 bands between 1574.397 - 1576.443 MHz.

Mechanical Data

Dimensions (mm)	90 x 100 x 256 (Heigth x Width x Depth)
Weight (kg)	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	outdoor
Operation temperature (°C)	-55 to 85
Storage temperature (°C)	-55 to 85
Transport temperature (°C)	-55 to 85
IP rating	IP67, IP69
Flammability rating	EN 45545-2 R24 HL3
Solar radiation	UL 746C, F1
2011/65/EU (RoHS - including 2015/863 and 2017/2102)	compliant acc. Annex III
Lead-free soldered	yes
WEEE 2012/19/EU	no special marking needed
ELV 2000/53/EC	compliant
REACH 1907/2006/EC	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	RAL 7043 (dark grey)
Radome material	PC (Polycarbonate)
Back plate/base plate colour	grey
Back plate/base plate material	Aluminium
Plating	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	DOC-0000295392
Painting instruction	DOC-0000256180
Security instruction	DOC-0000278984
Outline drawing	DOU-00131449

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Outline drawing 2	DOU-00154160
3D-model	DOC-0000334491
CE compliancy	DOC-0000896953

Additional Information

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

Waiver: Fact and figures herein are for information only and do not represent any warranty of any kind.