

Sencity Rail MULTI 13-Port 1399.99.0133

Description

13-Port Railway rooftop antenna for Cellular and WiFi bands.
 Supports 8x8 Cellular MIMO for 3G, 4G and 5G.
 Supports 4x4 WiFi MIMO in 2.4 GHz and 5 GHz bands.
 8 radiators for Cellular bands.
 4 radiators for WiFi/WiMAX bands.
 Embedded GPS+Glonass antenna with integrated LNA.
 Rugged design, meets EN 50155 railway standard.
 Fire retardant acc. to EN 45545-2 and NFPA130.



Product Configuration

Technical Data

Electrical Data

	Band 1	Band 2	Band 3	Band 4
Band Name	Cellular 1-8	Cellular 1-8	Cellular 1-8	Cellular 1-8
Frequency (MHz)	694 - 960	1350 - 2700	2700 - 3300	3300 - 4900
VSWR	1.6	1.8	1.8	1.9
Impedance (Ohm)	50	50	50	50
Gain (dBi)	5	6	6	6
Ambient temperature (°C)				
Port Isolation (dB)	13	20	25	25

	Band 5	Band 6	Band 7	Band 8
Band Name	Cellular 1-8	Wifi 1-4	Wifi 1-4	GPS/Glonass
Frequency (MHz)	4900 - 5975	2400 - 2500	4900 - 5975	1574 - 1610
VSWR	1.7	1.7	1.5	1.8
Impedance (Ohm)	50	50	50	50
Gain (dBi)	6	7	7	
Port Isolation (dB)	25	22	35	

Ports

	Port 1	Port 2	Port 3
Port name	Cellular 1-8	Wifi 1-4	GNSS
Connector	N, jack (female)	N, jack (female)	TNC, plug (male)
Cable Type	RADOX_RF_316_D	RADOX_RF_316_D	RADOX_RF_316_D
Polarization	vertical	vertical	circular right
DC grounded	Yes	Yes	

Connections

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

General Data

The antenna provides 8 separate cable leads defined as "Port 1".
 The antenna provides 4 separate cable leads defined as "Port 2".

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Ground plane: VSWR and gain values are also valid for installations on non-metallic surfaces (no specific ground plane requirements).
Please refer to the outline drawing for cable pigtail length of each port.

Electrical Data LNA

LNA noise figure dB	2
LNA current consumption (mA)	30
LNA is connected to	Port 3

EMC: EN 50121-3-2:2016

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

Mechanical Data

Dimensions (mm)	84 x 368 x 862 (Height x Width x Depth)
Weight (kg)	11

High-voltage-protection: No voltage on RF port if the catenary line touches the antenna (EN 50124-1, 3.8 kVDC, 27.5 kVAC).

High-current-protection: Designed acc. to UIC 533, DC-grounded antenna element (protection against lightning and short circuit with catenary lines (40kA/0.1s).

Corrosion: Low corrosion design acc. to MIL-DTL-14072(E).

Mounting: Shall be installed in longitudinal position to the wind/driving direction.

Environmental Data

Environmental conditions	outdoor
Operation temperature (°C)	-40 to 85
Storage temperature (°C)	-55 to 85
Transport temperature (°C)	-40 to 85
IP rating	IP69
Solar radiation	DIN 75220
2011/65/EU (RoHS - including 2015/863 and 2017/2102)	compliant
WEEE 2012/19/EU	no special marking needed
REACH 1907/2006/EC	compliant

Environmental tests: EN 50155:2010

§12.2.3 EN 60068-2-1 Cold temperature test Ad, -55°C, 16h

§12.2.4 EN 60068-2-2 Dry heat test Bd +85°C, 16h

§12.2.5 EN 60068-2-30 Damp heat cyclic test Db, +25/55°C, 2 cycles

§12.2.10 EN 60068-2-11 Salt Mist test Ka, 96h

§12.2.11 EN 61373 § 9 Random Vibration (Long life) test, Cat. 1 class B

§12.2.11 EN 61373 § 10 Mechanical shock test, Cat. 1 class B

§12.2.12 DIN EN 60529 Ingress protection test, IP69

Flamability rating: EN 45545-2, NFPA130

Material Data

Radome colour	RAL 7043 (dark grey)
Radome material	ASA (acrylic ester-styrene-acrylonitrile)
Back plate/base plate material	Aluminium

Related Products

9091.99.0263 Aluminium Mounting Plate for Sencity Rail MULTI 13-Port

9091.99.0264 Sencity Rail mounting plate (steel)

Related Documents

Mounting instruction	DOC-0000774998
Painting instruction	DOC-0000256180
Security instruction	DOC-0000278984
Outline drawing	DOU-00336607
3D-model	DOC-0000763441
CE compliance	DOC-0000340163

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Additional Information

The antenna needs a customer specific bracket when mounted on a curved roof (not part of the delivery content of the antenna).

Standard brackets are available for the antenna mounting above an existing cable breakthrough on a flat roof: Product ID 9091.99.0263 (for aluminium train bodies) or 9091.99.0264 (for steel train bodies). Protected by Patents: DE202015009331(U1), US10116056(B2), CN106663861B, US7327320B2, CN1765030B, AU2003218856A1, CA2521771C, SG114406, ZA200508290