

SENCITY® Rail MULTI 7-Port Antenna with Dualband GNSS/LNA

1399.99.0162

Properties

- Railway rooftop antenna for 2G/3G/4G/5G cellular and Wi-Fi 7 bands
- Cellular 4x4 MIMO with four separate broadband integrated antennas and Wi-Fi 2x2 MIMO with two separate antennas
- Rugged design, meets EN 50155 Railway Standard
- Fire retardant acc. to EN 45545-2 and NFPA130
- Includes dualband GNSS antenna & integrated LNA covering GPS L1+L2+L5/ Galileo E1+E5a+E5b/BeiDou B1+B2+B3/GLONASS G1+G2



Electrical data				
	Band 1	Band 2	Band 3	Band 4
Name	Cellular 1-4	Cellular 1-4	Cellular 1-4	Cellular 1-4
Frequency	617 MHz ... 694 MHz	694 MHz ... 960 MHz	1350 MHz ... 3300 MHz	3300 MHz ... 6425 MHz
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	1.9	4	1.9	1.8
Gain	4 dBi	5 dBi	4.5 dBi	6 dBi
Isolation between Ports	13 dB	13 dB	21 dB	25 dB
Ambient Temperature	25 °C	25 °C	25 °C	25 °C
Composite Power max	65 W	56 W	30 W	25 W

	Band 5	Band 6	Band 7	Band 8
Name	Cellular 1-4	Wi-Fi 1-2	Wi-Fi 1-2	GNSS 1
Frequency	6425 MHz ... 7125 MHz	2400 MHz ... 2500 MHz	4900 MHz ... 7125 MHz	1164 MHz ... 1279 MHz
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	2	1.8	2.1	1.6
Gain	6 dBi	5.5 dBi	6.5 dBi	
Isolation between Ports	25 dB	21 dB	34 dB	
Ambient Temperature	25 °C	25 °C	25 °C	
Composite Power max	21 W	35 W	21 W	

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	Band 9
Name	GNSS 2
Frequency	1555 MHz ... 1610 MHz
Impedance	50 Ω
VSWR	1.5
Gain	
Isolation between Ports	
Ambient Temperature	
Composite Power max	

Electrical remarks

Remarks	Ground plane: VSWR and gain values are also valid for installations on non-metallic surfaces (no specific ground plane requirements). Exceptions: Band 1, VSWR: 2.2 without ground plane Band 2, VSWR 2 without ground plane Please refer to the outline drawing to read the cable pigtail length of each port.
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Ports

	Port 1	Port 2	Port 3	Port 4
Port name	Cellular 1	Cellular 2	Cellular 3	Cellular 4
Connector	N, jack (female)	N, jack (female)	N, jack (female)	N, jack (female)
Cable type	RADOX_RF_316_D	RADOX_RF_316_D	RADOX_RF_316_D	RADOX_RF_316_D
Cable length	0.4 m	0.53 m	0.53 m	0.4 m
Polarization	vertical	vertical	vertical	vertical
DC grounded	Yes	Yes	Yes	Yes

	Port 5	Port 6	Port 7
Port name	Wi-Fi 1	Wi-Fi 2	GNSS
Connector	N-type Jack	N, jack (female)	TNC, TNC, plug (male)
Cable type	RADOX_RF_316_D	RADOX_RF_316_D	RADOX_RF_316_D
Cable length	0.46 m	0.48 m	0.44 m
Polarization	vertical	vertical	circular right
DC grounded	Yes	Yes	

Connections

	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7
Port name	Cellular 1	Cellular 2	Cellular 3	Cellular 4	Wi-Fi 1	Wi-Fi 2	GNSS
Band 1	✓	✓	✓	✓			
Band 2	✓	✓	✓	✓			
Band 3	✓	✓	✓	✓			
Band 4	✓	✓	✓	✓			
Band 5	✓	✓	✓	✓			
Band 6					✓	✓	
Band 7					✓	✓	
Band 8							✓

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Connections							
Band 9							

Mechanical data	
Weight	8 kg
Dimensions	84 mm x 380 mm x 439.5 mm (Height x Width x Depth)
Remarks	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. Corrosion: Low corrosion design according to MIL-F-14072(E), 96 hours Salt Spray test.

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

Environmental data	
Operation temperature	-40 °C ... 85 °C
Storage temperature	-55 °C ... 85 °C
Transport temperature	-40 °C ... 85 °C
Environment (application)	Outdoor
Ingress protection (IP Rating)	IP69
Flammability rating	EN 45545-2 R24 HL3

Environmental remarks
Environmental tests: EN 50155:2022-06 §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

Flammability rating: EN45545-2:2023, NFPA-130:2023

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.

Additional Information
The antenna needs a customer specific bracket when mounted on a curved roof (not part of the delivery content of the antenna). A standard bracket is available for the antenna mounting above an existing cable breakthrough on a flat roof (Article Number 9091.99.0270).

Antenna accessories remarks
9091.99.0269 Aluminium Mounting Plate for Sencity Rail MULTI 7-Port
9091.99.0270 Steel Mounting Plate for Sencity Rail MULTI 7-Port

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Ordering information		
Item description	Item number	Product name
1399.99.0162	85173739	SENCITY® Rail MULTI 7-Port Antenna with Dualband GNSS/LNA

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