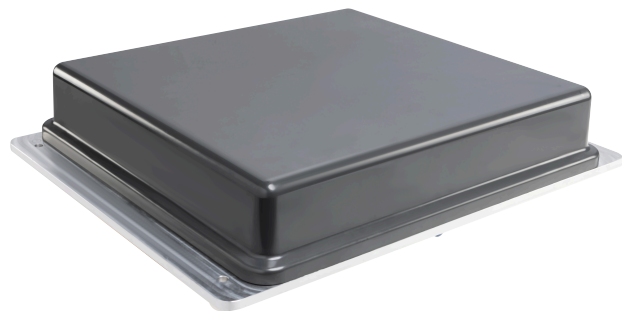


SENCITY® Rail MIMO+ 2x2 Antenna with Dualband GNSS/LNA

1399.99.0301

Properties

- Enables 2x2 MIMO with true polarisation diversity for high data throughput
- Average combined condition number on the supported cellular bands of <10dB
- Supporting 2G/3G/4G/5G bands between 694-4200 MHz and additionally includes a GNSS/LNA
- Rugged design, meets EN 50155 railway standard and Fire retardant according to EN 45545-2 and NFPA130
- High Voltage and High Current protection for use under catenary lines



Electrical bands

	Band 1	Band 2	Band 3	Band 4
Name	Vertical Polarisation	Vertical Polarisation	Vertical Polarisation	Horizontal Polarisation
Frequency	617 MHz ... 960 MHz	1425 MHz ... 2690 MHz	3300 MHz ... 4200 MHz	694 MHz ... 960 MHz
Impedance	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	1.9	2	1.9	1.9
Gain	7 dBi	8 dBi	9 dBi	7 dBi
Isolation between Ports	35 dB	31 dB	40 dB	35 dB
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	Horizontal Polarisation	Horizontal Polarisation	GNSS 1	GNSS 2
Frequency	1425 MHz ... 2690 MHz	3300 MHz ... 4200 MHz	1164 MHz ... 1279 MHz	1555 MHz ... 1610 MHz
Impedance	50 Ω	50 Ω		
VSWR	2	1.9	1.7	1.7
Gain	9 dBi	9 dBi		
Isolation between Ports	31 dB	40 dB		
Ambient Temperature	25 °C	25 °C		

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	Band 5	Band 6	Band 7	Band 8
Composite Power max	80 W	80 W		

Electrical remarks

Remarks	Ground plane: VSWR and gain values are based on a reference ground plane of 1000x500mm. The tolerance of the VSWR and Isolation values is 0.5dB. The Cellular and Wi-Fi 6E bands from 4900 - 7125 MHz are supported on the vertically polarised ports (no ground plane requirements). The isolation values are valid only for the ports with common bands. The best indicator for the actual antenna performance is the average combined condition number. High-voltage-protection: no voltage on RF port, if the catenary line touches the antenna (EN 50124-1, 3.8 kVDC, 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(40kA/0.125s)
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Ports

	Port 1	Port 2	Port 3
Port name	vertical	Horizontal	GNSS
Connector	N, jack (female)	N, jack (female)	TNC, plug (male)
Cable type	RADOX_RF_142	RADOX_RF_142	RADOX_RF_316_D
Cable length	0.3 m	0.3 m	0.27 m
DC grounded	Yes	Yes	No

Connections

	Port 1	Port 2	Port 3
Port name	vertical	Horizontal	GNSS
Band 1	✓		
Band 2	✓		
Band 3	✓		
Band 4		✓	
Band 5		✓	
Band 6		✓	
Band 7			✓
Band 8			✓

Electrical data LNA

LNA is connected to	Port 3
Current consumption	43 mA
Noise figure	2 dB
Gain	38 dB

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Mechanical data	
Weight	6.5 kg
Dimensions	90 mm x 508.7 mm x 411.7 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. 4x composite sealing washers included for silicone-free sealing of the mounting screws.

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

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)	IP69
Flammability rating	EN 45545-2

Environmental remarks

Environmental tests: EN 50155:2022-06

§13.4.6 EN 60068-2-1:2007 Cold temperature test Ab, -55°C, 16h
 §13.4.5 EN 60068-2-2:2007 Dry heat test Be +85°C, 16h
 §13.4.7 EN 60068-2-30:2005 Damp heat cyclic test Db, +25/55°C, 2 cycles
 §13.4.10 EN 60068-2-11:2021 Salt mist test, 96h
 §13.4.11 EN 61373:2011-04 § 8, Cat. 1B Broadband Random Vibration
 §13.4.11 EN 61373:2011-04 § 9, Cat. 1B Increased Random Vibration
 §13.4.11 EN 61373:2011-04 § 10, Cat. 1B Mechanical shock
 §13.4.12 Ingress Protection EN 60529:2014-09 IP6X, IPX7, IPX9

Flammability rating: EN45545-2:2020-10 + A1:2015, NFPA-130:2020

Tested according to ISO 4589-2:2017, NFX 70-100-1:2006, ISO 5659-2:2011.

Additional Information

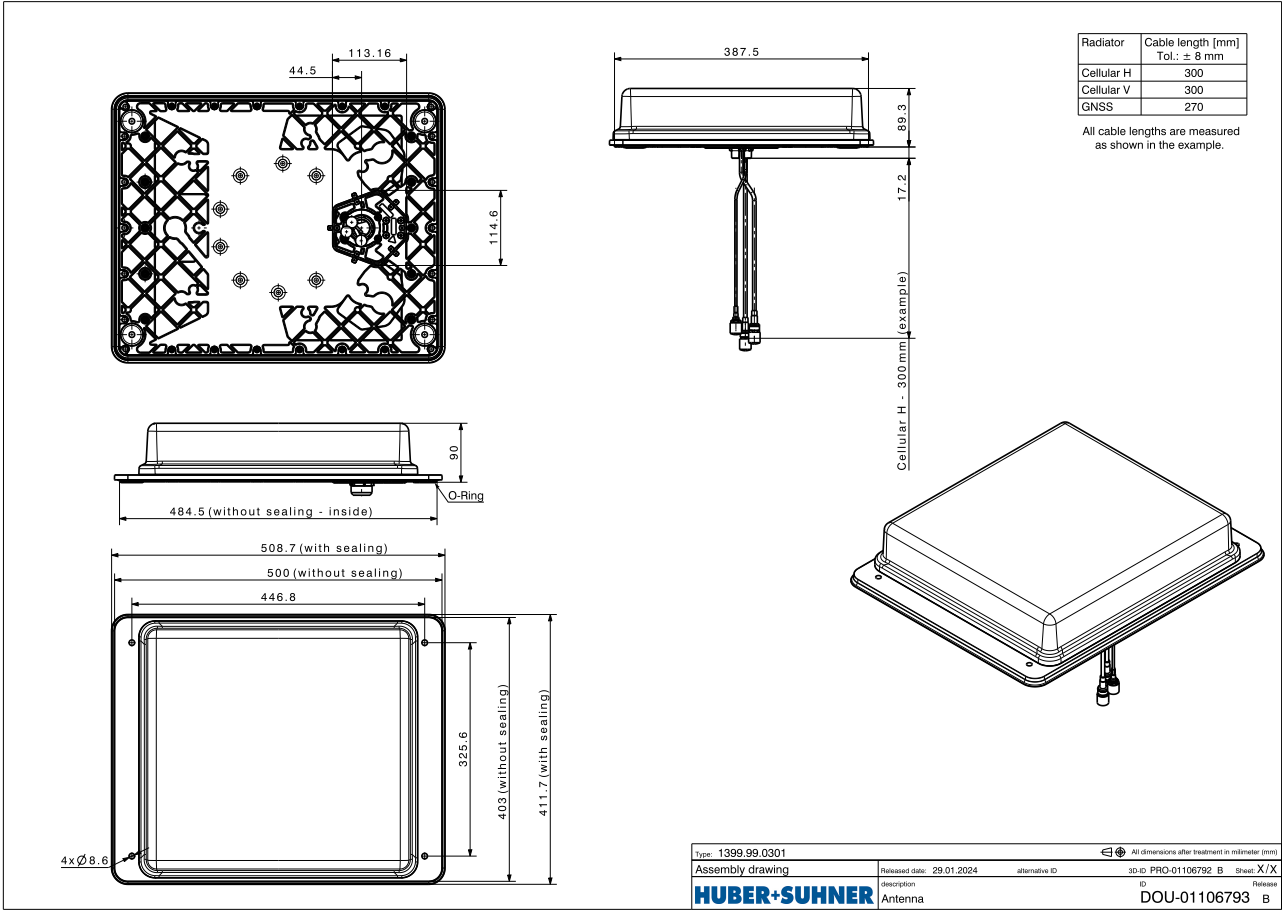
Accessories:

9091.99.0236: Cable Conduit Kit

9091.99.0235: Grounding Kit

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Outline drawing



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