

PRODUCT SUMMARY 030-096-010

EDGE

RAIL

For Cellular 5G, Wi-Fi and GNSS train-to-ground services with Edge Compute

Connection provided via a single PoE input.
Includes integrated compute board for Edge applications.

Rugged design meeting EN 50155 Railway Standard.
Fire retardant according to EN 45545-2/NFPA-130.
Compliant to high-voltage and high-current standards for use under catenary lines.



KEY FEATURES

- Includes Cellular 5G and Wi-Fi radio modules
- EDGE Compute platform
- Connection via a single POE input LAN M12 X-code female 300mm pigtail.
- Supports up to 4x4 MIMO Cellular 5G with 4G/3G fallback
- Supports 2x2 MU-MIMO Wi-Fi 5 dual-band 2.4 / 5 GHz.
- GNSS receiver supports GPS L1, Galileo E1, BeiDou B1, GLONASS G1 constellations.
- eSIM ready, dual physical eSIM option
- Application Software: Pre-installed with Motion Applied Fleet Connect software, separate Licence terms apply.

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Communication Services		
Radio Module	Sierra Wireless 5G Module EM9291	
Supported Bands	5G NR	n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n30, n38, n40, n41, n48, n66, n70, n71, n77, n78, n79 (617-5000 MHz)

Communication Services		
	2x2 MIMO	All FR1 bands
	4x4 MIMO	1, 2, 3, 4, 7, 25, 30, 38, 40, 41, 48, 66, 70, 75, 76, 77, 78, 79
	LTE CAT 20	B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B21, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71
	WCDMA	1, 2, 3, 4, 5, 8, 19
	Wi-Fi	802.11ac Wave 2, 2x2 MU-MIMO (5150-5850 MHz) 802.11n Wave 1 (2400-2500 MHz)
	GNSS	GPS L1C/A L2C, GLO L1OF L2OF, GAL E1B/C E5b, BDS B1I B2I and QZSS L1C/A L1S L2C
Note	Supported bands also valid for installations on non-metallic surfaces (no specific ground plane requirements). For band 71 an additional ground plane of at least 500x500mm is recommended.	

Electrical Data	
Ethernet	1x LAN M12 X-code female 300mm pigtail
Power Input	PoE+ Class 4 (802.3at)
Interfaces	1x M.2 key B, USB 3.0, 2x SIM slots (2FF) 1x mPCIe , USB 2.0, PCIe
Note	Self-powered embedded Real time clock 6x LED status indicators 2x integrated SIM slots (2FF form factor)

For more information contact: Motion Applied Ltd
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Electrical Remarks	
Remarks	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).
Compliance	
Mobile networks standards	PTCRB (US and Canada) GSF ISED
Mobile network certifications	Verizon, AT&T, T-Mobile
RED	RED (EDGE Rail + Fleet Connect)
Mechanical Data	
Weight	7.5 kg
Dimensions	84 mm x 380 mm x 439.5 mm (Height x Width x Depth)
Interface and Material Data	
Radome materials	PC (Polycarbonate)
Radome colour	RAL 7043 (dark grey)
Back plate/base plate material	Aluminium
Back plate/base plate colour	Grey
Environmental Data	
Operational temperature	-40 °C ... 85°C
Storage temperature	-40 °C ... 85°C
Transport temperature	-40 °C ... 85°C
Environment (application)	Outdoor
Ingress protection (IP Rating)	IP69k
Flammability rating	EN 45545-2 R24 HL3
Solar radiation	UL 746C, F1

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Environmental Remarks

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.
 Environmental tests: EN 50155:2018-05

§13.4.6 EN 60068-2-1:2008-01 Cold temperature test Ab, -40°C, 16h
 §13.4.5 EN 60068-2-2:2008-01 Dry heat test Be +85°C, 16h
 §13.4.7 EN 60068-2-30:2006-06 Damp heat cyclic test Db, +25/55°C, 2 cycles
 §13.4.10 EN 60068-2-11:2000-02 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, IPX9K

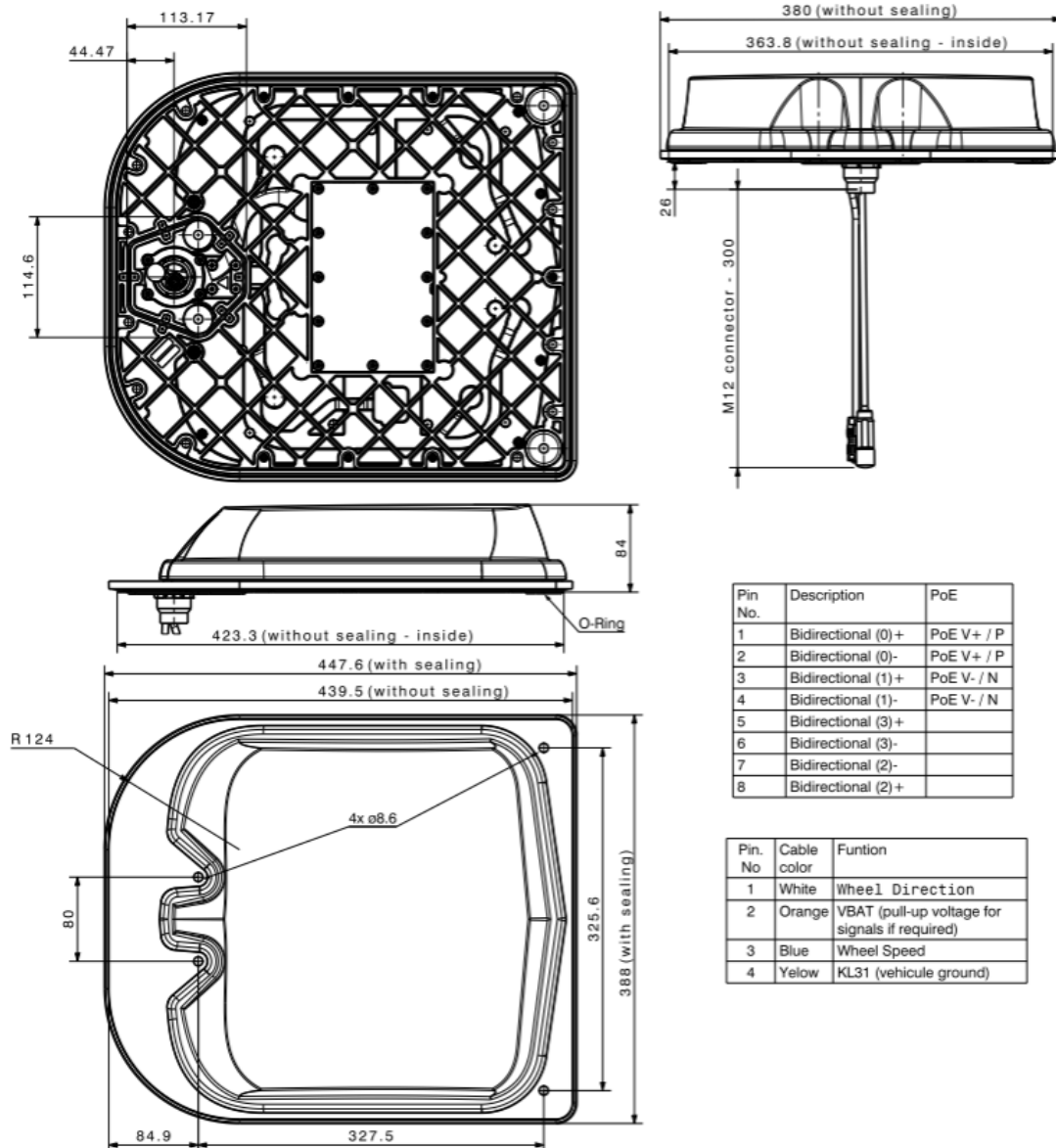
Corrosion: Low corrosion design acc. to MIL-DTL-14072(E), 96 hours Salt Spray test.

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TECHNICAL IMAGERY



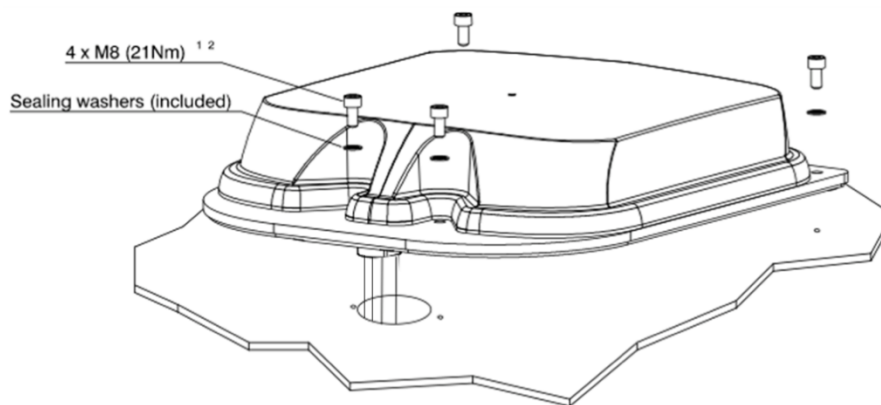
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Mounting Information



The antenna 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.

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.

Waiver: It is exclusively in written agreements that we provide our customers with warrants and representations as to the technical specifications and/or the fitness for any particular purpose. The facts and figures contained herein are carefully compiled to the best of our knowledge, but they are intended for general information purposes only.

Protected by Patents: DE202015009331(U1), US10116056(B2), CN106663861B, US7327320B2, CN1765030B, AU2003218856A1, CA2521771C, SG114406, ZA200508290.