

Coach™ II Permanent Mount

Combination Antennas - 5G Cellular, Wi-Fi and GNSS

GL9X1AX-SF, GL7X1AX-SF, GL4X4-SF-PLK, GL6X1AX-SF



Description

Multiband combination antenna offers a rugged design and is configurable up to 9x1 ports (4x4 Cellular, 4x4 Wi-Fi 7 and GNSS). The Cellular 4x4 MIMO ports cover the LTE/5G sub 6 GHz bands down to 600 MHz. The Wi-Fi 6E 4x4 MIMO port up to 7150 MHz. This antenna platform can also be equipped with a pre-filtered GNSS antenna.

The platform meets EN 50155:2007 and AAR requirements for ITS rail and roadway applications.

Technologies

- MIMO Cellular
- MIMO Wi-Fi
- LTE
- 5G
- NB-IoT
- Wi-Fi 6E, 7
- V2X
- GNSS

Features

- Compatible with the world's leading multi-carrier cellular routers
- Superior out-of-band rejection
- Easy installation and/or replacement
- Withstands severe environmental conditions
- EN 50155:2007; AAR compliant



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The Coach™ II platform supports the high speed requirements of complex RF communication systems used for Intelligent Transportation Systems (ITS) and Industrial IoT applications. These low-profile, high endurance antennas feature four 5G elements compatible with the world's leading multi-carrier cellular routers that support 600 MHz to 6 GHz frequencies.

The platform meets EN 50155:2007 and AAR requirements for ITS rail and roadway applications.

Features

- Wideband coverage – 4G LTE, 5G and dual-band 802.11ac Wi-Fi coverage in a single, low-profile housing
- Superior out-of-band rejection – Proprietary filtering design allows wideband coverage for all GNSS frequencies
- Easy installation and/or replacement – Metal stud mount with slotted jam nut provides single cable exit
- Withstands severe environmental conditions – IP67 compliant design with overmolded gasket protects against water or dust ingress (when installed on sealed surface)
- Meets EN 50155:2007 and AAR certification requirements for rail applications

Certifications



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Standard Configurations

Model	Elements	Cable	Connector	Mount
GL9X1AX-SF	LTE (All Ports) Wi-Fi (All Ports) GNSS	Four-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) Four-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) One-17 feet RG-316	SMA Plug (Male) Reverse Polarity SMA Plug (Male) SMA Plug (Male)	1-inch OD, 3/4-inch long (.75") zinc stud mount with jam nut (all models)
GL7X1AX-SF	LTE (All Ports) Wi-Fi (All Ports) GNSS	Four-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) Two-17 feet (2-ft RG-316/15-ft Pro-Flex Plus 195) One-17 feet RG-316	SMA Plug (Male) Reverse Polarity SMA Plug (Male) SMA Plug (Male)	
GL4X4-SF-PLK	LTE (All Ports) GNSS	Four-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) One-17 feet RG-316	SMA Plug (Male) SMA Plug (Male)	
GL6X1AX-SF ¹	LTE (All Ports) Wi-Fi (All Ports) GNSS	Two-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) Three-17 feet (2-ft RG-316/15-ft Pro-Flex™ Plus 195) One-17 feet RG-316	SMA Plug (Male) Reverse Polarity SMA Plug (Male) SMA Plug (Male)	

Electrical Specifications – RF Antennas

F1 (MHz)	F2 (MHz)	SWR ²		Gain (dB) ³		Efficiency ³		Polarization	Nominal Impedance	Maximum Power
		Max	Typical	Range (±)	Avg	Range (±)				
LTE Primary (1&3)										
617	698	2.5	-0.2	-0.9	0.7	33%	3%	Linear	50 ohms	50 watts
698	802	1.9	1.1	-0.3	1.4	34%	6%			
824	960	2.0	2.1	0.6	1.6	36%	4%			
1710	2200	1.6	4.4	2.6	1.9	31%	3%			
2300	2690	1.4	4.8	2.7	2.1	29%	2%			
3400	3800	1.4	4.7	2.5	2.2	26%	1%			
5150	5950	1.3	5.8	1.9	3.9	16%	3%			
LTE Secondary (2&4)										
617	698	3.4	-1.4	-3.0	1.6	16%	8%	Linear	50 ohms	50 watts
733	802	2.0	0.0	-1.0	0.9	31%	4%			
824	960	2.7	0.0	-1.6	1.5	28%	8%			
1805	2200	1.6	1.7	0.9	0.8	29%	4%			
2300	2690	2.0	1.5	-0.5	2.0	20%	6%			
3400	3800	1.9	2.2	0.4	1.8	20%	3%			
5150	5950	1.4	2.6	1.3	1.4	16%	1%			
Wi-Fi										
2400	2500	1.3	9.1	7.2	1.9	74%	4%	Linear	50 ohms	50 watts
4900	5900	1.5	11.4	9.1	2.3	59%	14%			

¹ This model is not dual carrier and only includes two primary LTE ports.

² Gain and efficiency measured with no cable and no ground plane.

³ SWR measured with 17-ft cables and no ground plane.

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Electrical Specifications – RF Antennas (continued)

Minimum Isolation (dB)⁴

Elements	LTE Primary (1&2)		LTE Primary (1&2)		Wi-Fi	
LTE Primary (1&3)	617-960 MHz	14.0	698-960 MHz	14.0	698-960 MHz	20.0
	1.71-2.7 GHz	25.0	1.71-2.7 GHz	25.0	1.71-2.7 GHz	17.0
	3.3-3.59 GHz	35.0	3.3-3.59 GHz	27.0	3.3-5.9 GHz	35.0
LTE Secondary (2&4)			698-960 MHz	18.0	698-960 MHz	22.0
			1.71-2.7 GHz	30.0	1.71-2.7 GHz	16.0
			3.3-3.59 GHz	32.0	4.9-5.9 GHz	32.0
Wi-Fi					2.4-2.5 GHz	25.0
					4.9-5.9 GHz	32.0

Electrical Specifications – GNSS Antenna

Specification	Measurement
Frequency Band	1565-1608 MHz
Amplifier Gain	@ 3.0 VDC: 26 dB (typical)
Output VSWR	2.0:1 (maximum)
DC Current	25 mA (typical)
DC Voltage	2.8-6.0 V (operating) ≤ 12.0 V (survivability)
Noise Figure	< 2.0 dB (typical)
Out-of-Band Rejection	f ₀ = 1586 MHz f ₀ ± 50 MHz: ≥ 60 dBc f ₀ ± 60 MHz: ≥ 70 dBc
Nominal Gain	3 dBic @ 90° -2 dBic @ 20°
Polarization	Right hand circular
Nominal Impedance	50 ohms

Mechanical and Environmental Specifications

All Models

Dimensions (L x W x H)	6.93 L x 6.09 W x 3.01 H in (176.0 x 154.8 x 76.5 mm)
Weight (9 ports)	4.8 lbs (2.2 kg)
Housing Material	Black or White ⁵ , UV-Stable Rugged Thermoplastics
Temperature Range	-40°C to +85°C
Gasket Design & Construction	Contour matching, conformable, thermoplastic-elastomer gasket designed to seal between radome and baseplate. Gasket flexes and conforms to contoured surfaces. Baseplate has a 3M® VHB mounting pad for anti-rotation.

⁴ Isolation measured with 17-ft cables and no ground plane.

⁵ For black radome, order P/N GL9X1AX-SF; for white radome, order P/N GL9X1AX-SFW.

CONTACT US

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