

Coach™ II 5G Cellular GNSS Multiband Antenna

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

GL125-DLTEMIMO-SM



Description

5G cellular multiband antenna with multi-GNSS compatibility and 802.11ac MIMO connectivity for Positive Train Control (PTC) networks and high precision location tracking.

Technologies

- 5G Cellular
- Wi-Fi
- GNSS L1, L2, L5
- GLONASS L1, L2, L3
- GALILEO E5A/E5B/E6
- BEIDOU B1, B2, B3
- QZSS L6

Features

- Covers global GNSS systems
- Proprietary filtering design allows wideband coverage for all GNSS frequencies
- Easy installation and/or replacement
- IP67 compliant design protects against water or dust ingress
- AAR compliant



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PCTEL's Coach™ II GL125-DLTEMIMO-SM multiband antenna meets the stringent requirements of complex RF communication systems in rail transportation applications. This antenna features two 4G LTE elements that facilitate the high-speed data transmissions needed in dense RF environments used for Positive Train Control (PTC) networks. The platform also incorporates dual band 802.11ac Wi-Fi MIMO connectivity with two Wi-Fi elements. PCTEL's proprietary high-rejection, multi-constellation GNSS L1 L2 L5 technology is also included for high precision location tracking.

Features

- Full multi-GNSS compatibility – covers global GNSS Systems
- 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 custom overmolded gasket protects against water or dust ingress
- AAR Compliant

Certifications



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Standard Configurations

Model	Elements	Cable	Connector	Mount
GL125-DLTEMIMO-SM	LTE (All Ports) Wi-Fi (All Ports) GNSS	Two 2-ft RG-316 Two 2-ft RG-316 One 2-ft 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)

Electrical Specifications – RF Antennas

F1 (MHz)	F2 (MHz)	Max SWR ¹	Gain (dB) ¹			Efficiency ¹		Polarization	Nominal Impedance	Maximum Power
			Max	Typical	Range (±)	Avg	Range (±)			
LTE										
600	698	< 3.5	2.5	1.5	1.1	55%	7%	Linear, vertical	50 ohms	25 watts
698	802	< 3.0	2.5	2.0	0.5	55%	10%			
824	960	< 2.5	1.8	1.4	0.9	55%	10%			
1710	2200	< 2.5	5.5	3.5	2.0	65%	11%			
2300	2690	< 2.0	6.2	5.1	0.6	68%	9%			
3400	3800	< 2.0	4.1	3.1	1.0	55%	15%			
Wi-Fi										
2400	2500	< 2.0	5.0	2.7	2.2	55%	5%	Linear, vertical	50 ohms	25 watts
4900	5925	< 2.5	6.0	4.0	2.0	45%	25%			

Minimum Isolation (dB)

Elements	LTE Primary (1&3)		Wi-Fi	
LTE	600-960 MHz	11.5	600-960 MHz	20.0
	1.71-2.7 GHz	23.0	1.71-2.7 GHz	17.0
	3.3-3.8 GHz	24.0	3.3-3.59 GHz	35.0
Wi-Fi			2.4-2.5 GHz	19.0
			4.9-5.9 GHz	30.0

¹ Measurements taken with 3-ft cables and no ground plane.

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Electrical Specifications – GNSS Antenna (all bands)

Specification	Measurement
Frequency Range	1150-1290 MHz 1500-1615 MHz
LNA Gain	28dB±3 dB
Nominal Impedance	50 ohms
Polarization	Right hand circular
ESD	> 15kV
VSWR	< 3.0 (L2-L5 bands) < 2.5 (L1 band)
Noise Figure	3.0 dB (typical)
Nominal Gain	3 dBic @ 90° -2 dBic @ 20°
DC Voltage	2.5-12.0 VDC
DC Current	37mA (typical) < 50mA (max.)
Out-of-Band Rejection	< 1050MHz > 80 dB < 1450MHz > 70 dB < 1125MHz > 30 dB > 1690MHz > 30 dB > 1350MHz > 70 dB > 1730MHz > 80 dB

Electrical Specifications – GNSS Antenna

Band	Gain @ 10° Elevation	Gain @ 90° Elevation	Axial Ratio @ 90° Elevation
GPS L1	-5 dBic	2 dBic	≤ 2.5 dB
GPS L2	-6 dBic	3 dBic	
GPS L5	-7 dBic	1 dBic	
GLONASS L1	-7 dBic	0 dBic	
GLONASS L2	-8 dBic	0 dBic	
GLONASS L3	-4 dBic	3 dBic	
GALILEO E1	-5 dBic	2 dBic	
GALILEO E5	-4 dBic	3 dBic	
GALILEO E6	-4 dBic	3 dBic	
BEIDOU B1	-4 dBic	3 dBic	
BEIDOU B1-2	-4 dBic	3 dBic	
BEIDOU B2	-5 dBic	2 dBic	
BEIDOU B3	-8 dBic	0 dBic	
QZSS L6	-4 dBic	3 dBic	

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PCTEL is a leading global provider of wireless technology, including purpose-built Industrial IoT devices, antenna systems, and test and measurement solutions. Trusted by our customers for over 25 years, we solve complex wireless challenges to help organizations stay connected, transform, and grow.



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Mechanical and Environmental Specifications

All Models

Dimensions (W x H)	5.1 W x 3.6 H in (130 W x 92 H mm)
Weight	2.3 lbs (1.04 kg)
Housing Material	Black, UV-Stable Rugged Thermoplastics
Temperature Range	-40°C to +85°C