

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.

Meets EN 50155:2007 requirements for rail and transit installations.

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
- EN 50155:2007; 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 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 included for high precision location tracking. This antenna platform also meets EN 50155:2007 and AAR requirements for ITS rail and roadway applications.

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
- Meets EN 50155:2007 and AAR certification requirements for rail applications

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 VSWR ¹ | Gain (dB) ¹ | | | Efficiency ¹ | | Polarization | Nominal Impedance | Maximum Power |
|---------------|----------|-----------------------|------------------------|---------|-----------|-------------------------|-----------|------------------|-------------------|---------------|
| | | | Max | Typical | Range (±) | Avg | Range (±) | | | |
| LTE* | | | | | | | | | | |
| 600 | 698 | < 4.5 | 3.0 | 1.6 | 1.4 | 40% | 10% | Linear, vertical | 50 ohms | 25 watts |
| 698 | 802 | < 3.0 | 4.0 | 2.5 | 1.5 | 53% | 9% | | | |
| 824 | 960 | < 2.0 | 4.0 | 3.0 | 1 | 50% | 6% | | | |
| 1710 | 2200 | < 2.0 | 6.0 | 5.0 | 1 | 62% | 5% | | | |
| 2300 | 2690 | < 2.0 | 7.0 | 6.0 | 1 | 65% | 4% | | | |
| 3400 | 3800 | < 2.0 | 6.5 | 6.0 | 0.5 | 62% | 2% | | | |
| 5150 | 5950 | < 2.0 | 6.0 | 5.5 | 0.5 | 54% | 3% | | | |
| Wi-Fi* | | | | | | | | | | |
| 2400 | 2500 | < 2.0 | 6.8 | 6.0 | 0.8 | 60% | 5% | Linear, vertical | 50 ohms | 25 watts |
| 4900 | 5925 | < 2.5 | 8.0 | 6.4 | 1.6 | 45% | 15% | | | |
| 5925 | 7150 | < 3.0 | 8.0 | 6.0 | 2.5 | 47% | 10% | | | |

*AUT measured on a 2ft ground plane with 3ft of RG316 cable

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 |
| | 5.15-5.925 GHz | 24.0 | 3.3-3.59 GHz | 35.0 |
| | | | 5.95-7.15 GHz | 35.0 |
| Wi-Fi | | | 2.4-2.5 GHz | 19.0 |
| | | | 4.9-5.9 GHz | 30.0 |
| | | | 5.95-7.15 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 | 40dB±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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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 |

CONTACT US

**For more information about
this product contact your
sales representative or visit
> pctel.com/antenna-products**

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