

GEMINI3[™]

MOBILE DATA RADIO MODEM

UHF, 700 MHz or 800 MHz



Capitalizing on over 20 years of experience designing mission critical wireless data equipment, Dataradio proudly presents the GeminiG3. This native IP mobile data modem operates at 128 kbps over 50 KHz channels at 700 MHz or 64 kbps in 25 kHz channels over 800 MHz and UHF channels using proven FM technology.

PERFORMANCE In addition to unprecedented speed, the GeminiG3 radio modem provides exceptional adjacent channel protection. The Gemini G3 mobile automatically adapts to base station data speeds for maximum network flexibility. The GeminiG3 mobile can be programmed with up to 32 channels and automatically change channels as it roams seamlessly through the service area. With Parallel Decode[®], multi-path problems are almost eliminated. A highly efficient air protocol assures enough data throughput to support video from a patrol car.

EASILY CONFIGURE AND MANAGE YOUR NETWORK The GeminiG3 radio modem embedded web server provides access to status and configuration information from any web browser, either locally or remotely. For ease of maintenance or upgrades the entire unit, including the operating system, can be reprogrammed over the air. AES 128-bit encryption ensures that both the data and the network remain secure.

GET THE MOST OUT OF YOUR AVAILABLE BANDWIDTH To help make the most efficient use of your network, the GeminiG3 mobile has "stateless" over-the-air data compression and protocol reduction. Stateless compression means that it works efficiently on both TCP/IP and UDP packets without needing a dedicated server or gateway.

KNOW THE EXACT LOCATION OF EACH VEHICLE with an internal 12-channel WAAS-capable GPS receiver designed for improved accuracy, integrity, and availability of the basic GPS signals, Dataradio's out-of-band signaling and autonomous AVL allow the GeminiG3 mobile to transmit GPS position reports with no adverse effect on system throughput.

EASILY INTEGRATE PERIPHERALS The GeminiG3 radio modem uses a standard Ethernet 10/100 BaseT interface with automatic MDIX so it's plug and play with any Ethernet device. In addition, the GeminiG3 mobile provides two RS-232 ports configured as terminal servers and a built-in router. Additional devices can be connected to the network by using an in-car hub or switch. This makes adding other peripherals, such as a camera, a snap.

CONVENIENT NETWORK MONITORING On and offline diagnostics are standard in the Gemini platform to give you real-time network performance information. Diagnostics, combined with our optional Network Management System (NMS), give data network administrators proactive tools to effectively collect and analyze diagnostic information providing an effective means to assure the reliability of your data network.

BUILT FOR THE FUTURE The GeminiG3 radio modem has plenty of horsepower for today's applications, and with 4 megabytes of flash memory, there is plenty of head-room for features and enhancements to meet future requirements. To ensure the value of your investment, the GeminiG3 mobile comes with a two-year warranty with optional extended warranty plans available.

System Diagram



GEMINIG3 SPECIFICATIONS

| GENERAL | UHF | 700 MHz | 800 MHz |
|-----------------------------|---|----------------------------|---|
| Frequency Range (MHz) | 403 - 512 Rx/Tx | 792 - 803 Tx, 762 - 773 Rx | 806 - 824 Tx, 851-869 MHz Rx |
| Emission Designators | 17K0F1D (all bit rates) | 28K0F1D (all bit rates) | 14KF1D (64 & 48 kbps), 15K6F1D (32 kbps) |
| Regulatory Designators | FCC Part 90 / IC RSS-119 | FCC Part 90, 27 | FCC Part 90 / IC RSS-119 |
| FCC ID/Industry Canada | EOTAPDA/773195525A | EOTGPD7 | EOTGPDB/773A-773195643A |
| Number of Channels | 32 internally stored, over-the-air programmable | | |
| Modes of Operation | Half-Duplex | | |
| Frequency Stability | 1.0 ppm | | |
| Data Encryption | AES 128-bit | | |
| Power Supply Voltage | 13.6 VDC nominal (negative ground) | | |
| Size | 6.0" W x 2.0" H x 7.1" D | | |
| Environmental | MIL-810E shock and vibration | | |
| Operating Temperature Range | -30° C to +60° C | | |
| Antenna Connector | 1 primary female Tx/Rx, 1 auxiliary female Rx | | |
| GPS Connector | SMA | | |
| User Interface | Ethernet RJ45 Auto-MDIX 10-100/T with LED status indicators Dual RS-232 DB-9F Serial ports configured as Terminal Servers USB Port (future use) | | |

MODEM/NETWORK

| | | | |
|--------------------------|--|--------------------|--------------------|
| Forward Error Correction | Hypercode | | |
| Addressability | Native TCP/IP | | |
| Encryption | AES 128-bit | | |
| Protocols | Dataradio E-DBA with OOB AAVL support Ethernet IEEE 802.3, (ICMP, IGMP, TCP, UDP) IP Fragmentation Address Resolution Protocol (ARP) IP directed broadcast, IP limited broadcast, IP multicast relay DHCP client and server Dynamic Routing (RIPv2), Network Address Translation (NAT) | | |
| Data Rate | 64, 48 or 32 kbps | 128, 96 or 64 kbps | 64, 48, or 32 kbps |

RECEIVER

| | | | |
|---|---|--|---|
| Rx Sensitivity (for 1% Packet Error Rate [PER] with Parallel Decode at carrier frequency) | -98 dBm @ 64 kbps -104 dBm @ 48 kbps -108 dBm @ 43.2 kbps -110 dBm @ 32 kbps | -94 dBm @ 128 kbps -100 dBm @ 96 kbps -106 dBm @ 64 kbps | -95 dBm @ 64 kbps -101 dBm @ 48 kbps -105 dBm @ 43.2 kbps -107 dBm @ 32 kbps |
| Selectivity | 77 dB typical, 75 dB minimum @ 25 kHz | 68 dB typical, 65 dB minimum @ 50 kHz | 77 dB typical, 75 dB minimum @ 25 kHz |
| Spurious Response | >80 dB minimum | | |
| Intermodulation | 80 dB typical, 75 dB minimum | 78 dB typical, 75 dB minimum | 80 dB typical, 75 dB minimum |
| Receive Frequency Range | 403-512 (FCC Part 90) | 766-773 MHz (FCC Part 90), 762-764 MHz (FCC Part 27) | 851-869 MHz (FCC Part 90) |

TRANSMITTER

| | | | |
|--------------------------|--|--|--|
| Transmit Frequency Range | 403-512 (FCC Part 90) | 796-803 MHz (FCC Part 90) 792-794 MHz (FCC Part 27) | 806-824 MHz (FCC Part 90) |
| Measurement Method | EIA/TIA (FCC approval), RSP-110 (IC approval) | EIA/TIA (FCC approval) | EIA/TIA (FCC approval), RSP-110 (IC approval) |
| Power Output | 10-40 W, adjustable in four steps | 10-25 W, adjustable in four steps | 10-35 W, adjustable in four steps |
| Spurious Emissions | >80 dBc | | |
| Attack Time | <10 mS with less than 1 mS variation | | |
| FM Hum and Noise | -45 dB max (25 kHz) | -50 dB max (50 kHz) | -45 dB max (25 kHz) |