DRAFT

RIM 802D

OEM Radio Modem for DataTAC

The RIM 802D OEM Radio Modem

The RIM 802D OEM Radio Modem is a high-performance digital RF transceiver designed for system integration by original equipment manufacturers. Operating in the 800 MHz frequency range, it is compatible with DataTAC wide-area wireless data communication networks. Typical applications include:

- Handheld Terminals, Laptops, Palmtops
- Electronic Funds Transfer (POS, ATM, etc.)
- Traffic Monitoring, Billboards, Signs, Signals
- Parking Monitoring and Enforcement

The 802D provides an unprecedented wireless development platform with the ability to store and execute an application on the internal 32 bit Intel® 386 processor. Available memory includes 100KB of RAM, 448KB of file space, and 256KB of application code space. The additional functionality of the 802D is particularly well-suited for applications such as:

- GPS, Asset Tracking, Vehicle Location, Fleet Management
- Telemetry, Meter Reading, Monitoring, Equipment Control
- Vending Machines

RIM 802D Features

Features that compel companies to integrate the 802D OEM Radio Modem into their products include:

Efficient Power Management

The 802D sets new power consumption standards by reducing stand-by power consumption to as low as 0.2 mA. Customers commonly insist on long lasting devices without heavy battery packs. RIM power consumption standards ensure efficiency and maximize battery life.

Small and Lightweight Single Board Design

Significantly smaller than a business card, and uncommonly thin and lightweight, the 802D is ideal for hand-held computers and installation in existing equipment enclosures. The single-board design ensures greater device reliability, particularly in high-vibration environments and in devices that are easily dropped.

Powerful and Efficient Transmitter

The 802D transmitter can supply a full 2 Watts to the antenna, enhancing in-building and fringe-area use. RIM's RF transceiver technology ensures efficient power conservation.

High Noise Immunity

The 802D has high immunity to RF noise generated by nearby electronics, which significantly extends battery life, increases message exchange reliability, and increases the effective range of operation. As a result of high noise immunity, special shielding and physical separation should not be necessary, allowing the 802D to meet tight space requirements as well as simplifying the integration.

RIM 802D Software Developer's Kit

The Software Developer's Kit provides an extremely powerful development environment that uses Microsoft Developer Studio 5.0 or later (Visual C++ 5.0 or later), supporting Windows 95 and Windows NT. The 802D platform is well-suited for object-oriented programming as it is managed by an event-driven, multi-tasking operating system that controls applications running on the modem's internal 32 bit Intel® 386 processor.

The 802D OS simulator allows a standard PC to be used for developing software applications, allowing developers to quickly write applications. When fully tested and debugged, the compiled application is easily downloaded into the 802D OEM Radio Modem without any required modifications.

On-board Applications

The SDK, along with the available memory on the 802D, allow developers to store and execute a wide variety of applications. This added capability offers developers the following valuable benefits:

Reduced Costs

The 802D with its SDK is no longer just a radio modem, but is now also a development platform with a 32 bit Intel® processor onboard. The SDK essentially eliminates the costs associated with external processing.

Easy Development and Implementation

A Microsoft Developer Studio-compatible SDK means that your software engineers can easily develop custom applications for the 802D radio modem.

Get Products to Market Faster

With the entire wireless solution in one package, an easy-to-use SDK and RIM's experience and leadership in the field of wireless communication and technology, your wireless business solutions will be implemented faster.

Technical Support

RIM has a team of experienced engineers who are dedicated to support you in the design and implementation of your project.

If you have any questions about radio technology or its integration into your platform, please do not hesitate to contact the RIM team:

Email: OEMsupport@rim.net
Phone: 519-888-7465
Fax: 519-888-7884
Web: www.rim.net

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Integrator's Kit

The RIM 802D Integrator's Kit offers the following tools and accessories to quickly begin using the RIM 802D OEM Radio Modem:

- Software Developer's Kit
- RIM 802D OEM Radio Modem
- Interface and Test Board including:
  - RS232 to 3.0V serial level conversion and FPC cable connector
  - DB-9 serial port for RS-232 connection to the host computer
  - Regulated power for the RIM 802D
  - LED indicators show when the RIM 802D is receiving power, transmitting, message waiting, in coverage, or exchanging data with the host
  - Test points for the 22-pin data cable
- Power supply (AC to DC)
- Required cables (including antenna cable)
- DB-9 to DB-9 straight through serial cable
- Magnetic-mount +3 dBd antenna
- Hardware Integrator's Guide
- Programmer's Guide to RAP (Radio Access Protocol)

Software Developer's Kit

The RIM 802D Software Developer's Kit includes all the tools required to accelerate application development. The Software Developer's Kit includes:

- Software
- Technical documentation for all APIs
- PC-based OS simulator
- Application utilities
- Source code examples

Hardware Integrator's Guide

The RIM 802D Hardware Integrator's Guide includes valuable information, such as:

- Hardware design recommendations
- Suppliers of cables, connectors, and antennas
- Antenna matching guidelines
- Schematics for power supplies and RS-232 serial port interfaces
- Software development suggestions and tools
- Detailed electrical and serial port specifications

Technical Specifications

Mechanical & Environmental Properties

- Weight (incl. case): 35g (1.23oz)
- Footprint: 42.0 x 67.5 mm (1.65" x 2.65")
- Thickness: 8.4 mm (0.33")
- Serial connector: 22-pin FPC connector
- MMCX Antenna cable connector
- Tested to IEC 68-2-6 Part 2 for vibration
- Operating temperature: -30°C to + 70°C (at 5-95% relative humidity, non-condensing)
- Storage temperature: -40°C to +85°C

RF Properties

- Transmit frequency: 806-825 MHz
- Transmit power range: 2.0 W at antenna port
- Receive frequency: 851-870 MHz
- Receive sensitivity: -118 dBm (MDC), -111 dBm (RD-Lap)
- Dual RF Air Protocol (19200 bps RD-Lap and 4800 bps MDC)
- Nation-wide fully automatic roaming
- FCC Parts 15 & 90: Pending
- Industry Canada RSS 119: Pending

Power Supply & Typical Current Usage

- Single power supply; operating range: 4.10 to 4.75 VDC
- Battery save stand-by mode: as low as 0.2 mA
- Receive / express stand-by mode: 61 mA
- Transmit mode: 1700 mA
- Average current usage: 4.1 mA (based on 94.95% standby, 5.00% receive, 0.05% transmit)

Serial Communications

- 3.0 V asynchronous serial port with flow control
- Second 3-wire serial port (TX, RX, GND)
- Message waiting, coverage, and transmit indicate outputs
- Link level protocols: Radio Access Protocol (RAP) and Native Control Language (NCL)
- Link speed: 1200-15200 bps

Other Features

- 32 bit Intel® 386 processor for onboard applications
- General purpose input/output lines
- I^2C bus capability
- Software can activate radio
- Single line to turn radio on/off
- Radio parameters stored at power down
- Terminal devices may power-down while radio modem remains operational
- Flow control options: Hardware, Xon/Xoff, or None
- Fully shielded metal enclosure
- Network Support: DataTAC 4000