

D Series

Data Radio Modem

DR900 - Digital Radios

Trio DataCom's **D Series** are high performance cost effective data radio modems designed as an alternative to hard wired data transport. Transmit your data over radio with a fully integrated data radio modem designed for fixed point-to-point and point-to-multipoint applications.

The **D Series** is available as either a half duplex or a full duplex* 853-929 MHz +/- 5MHz radio, including a fully integrated 4800 / 9600 bps data modem. These units operate equally well in either a stand-alone configuration, or as part of a large communication system.

This complete package forms an attractively priced product for the transmission of data over radio in fixed applications thus providing a viable alternative to costly networks of buried media.



Features:

- ❖ Fully integrated half and full duplex* radio and modem
- ❖ Transparent and non-intrusive remote diagnostic facilities (Optional)
- ❖ Inbuilt data routing and multiplexing capabilities, multi-port operation
- ❖ Simultaneous delivery of multiple protocols using Trio DataCom's unique MultiStream™ technology
- ❖ Digital Signal Processing (DSP) modem
- ❖ Selectable 300-19,200 bps asynchronous RS232 user interface
- ❖ Built-in antenna diplexer*
- ❖ Integrated supervisory data channel
- ❖ Unique collision avoidance facility, for unsolicited report-by-exception
- ❖ Software selectable configuration parameters
- ❖ Internal repeater operation
- ❖ Housed in an attractive yet robust metal enclosure
- ❖ Range of ancillary equipment - full duplex base / repeater stations and hot-standby base station

Radio

The **D Series** radio has been designed to meet worldwide regulatory guidelines, including FCC, and has adjustable power output up to 5 Watts. This fully synthesised radio is programmable in 6.25/7.5 kHz increments to accommodate various worldwide channel spacings. The receiver section has a wide tuning range with an excellent signal-to-noise ratio. Exceptional frequency stability is achieved by intelligent microprocessor controlled temperature compensation. An extended operating temperature range of -30 to 60°C makes the unit ideal for commercial and industrial applications.

Modem

The in-built modem includes a custom DSP developed for data communications over narrow band radio systems.

This system offers minimum occupied bandwidth and optimal data integrity (using the standard HDLC protocol with CCITT CRC error detection) inhibiting the transfer of any rogue unwanted data caused by interference or squelch headers / tails.

The Trio DataCom DSP provides:

- the interface between the asynchronous RS232 user communication and the synchronous radio link layer.
- an inbuilt multiplexer / router which allows for simultaneous transportation of multiple protocols over the one radio network.

Applications

The **D Series** is ideal for use in a variety of sophisticated and critical SCADA and Distributed Information Systems, where complex routing of multiple data protocols and remote diagnostics and wireless network management are important factors.

Remote units and a number of full duplex base station / repeater models, suitable for a variety of requirements, make up the **D Series**. At the top of the range, the DH model is a genuine, duplicated hot standby base for systems where nothing short of ultra reliability is acceptable.

Telemetry Systems - Utilities (Gas, Water, Electricity), Railways, Mining, Telecommunications, Industry. Where network status, system control, data collection and fault conditions are required.

Transaction Processing - Point of Sale Credit Terminals, Stock Control, Direct Order, Banks, Building Societies, Stock Brokers, Gambling Organizations, etc, where Point of Sale, inventory, credit, or transaction data requires collection and distribution.

Common Carrier Data Services - The high speed, low cost and spectrum efficiency of this device make it well suited to all forms of common carrier data networking.

Alarm Monitoring - Fire, Power, Intrusion & Essential Services Alarm Reporting.

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Configuration

Configuration using Trio's **D Series** programming software (DRProg) is completely Windows® based for all parameters, such as; frequency, transmitter power, digital mute level, PTT timer, system configurations, port settings.

Network Management & Diagnostic (Optional)

A large distributed network, or even a simple point-to-point link, requires comprehensive fault reporting and diagnostics to ensure a high level of availability. Trio **D Series** data radio modem products offer sophisticated in-built diagnostics using the optional **TView™** software. This capability allows the customer to remotely monitor and maintain their system, minimising the likelihood of failures, by pointing out component degradation and decreasing the time to diagnose and repair. There is no necessity to visit the master station or interfere with the host data integrity, other than additional data transfer. For further details, consult the **TView** data sheet.

Specifications:

RADIO	
Frequency Range**	853-929 MHz +/- 5MHz
Channel Selection	Fully programmable
Frequency Splits	76 MHz Tx/Rx frequency split available including simplex
Frequency Stability	±1ppm (-10 to 60°C ambient, opt. -30 to 70°C) Higher frequency stability options are available due to intelligent processor controlled temperature compensation
Aging	<= 1ppm/annum
Half / Full Duplex	half duplex or full duplex*
Data Rate (rf)	4800 / 9600 bps
Configuration	All configuration via Windows software

TRANSMITTER	
Tx Power	5 W (+37 dBm) or 1 W* (+30 dBm) (software programmable)
Modulation	Narrow band digital filtering binary GMSK
Occupied Bandwidth	Meets various international regulatory guidelines for point-to-point and point-to-multipoint
Tx Attach Time	< 1 mSecond
Timeout Timer	Programmable 1-255 seconds
Tx Spurious	<= -65 dBm

RECEIVER	
Sensitivity	-115 dBm for 12 dB SINAB
Blocking	> 75 dB (EIA)
Intermodulation	<= 70 dB (EIA)
Spurious Response	<= 70 dB (EIA)
Select. and Desense	70 dB (EIA)
AFC Tracking	±3 kHz tracking @ -90 dBm/attack time <10 mS
Mute	Programmable digital mute

Collision Avoidance

A unique fully integrated, yet independent, low speed supervisory data channel embedded within the primary bit-stream provides collision avoidance facilities which are transparent to the user. The use of this feature makes this product ideally suited for reliable, error free data transmissions between stations in high density point-to-multipoint data networks.

The benefits include:

- Multiple asynchronous applications operating on the one radio channel.
- Enhanced performance of report-by-exception networks.

Related Products

- ❖ Base Stations (DB900)
- ❖ Hot Standby Base Station (DH900)
- ❖ 9 Port Stream Router Multiplexer (MSR)
- ❖ Network Management and Diagnostic Software (TView™)
- ❖ D Series Programming Software (DRProg™)

CONNECTIONS	
User Data Port	2 x DB9 RS232 female ports
Antenna	SMA female bulkhead (optional N)
Power	2 pin locking. Mating connector supplied

MODEM	
Data Serial Port #1	Full duplex, DB9 RS232, DCE (modem), 300-19,200 bps asynchronous, hardware/software handshaking
Data Serial Port #2	Full duplex, DB9 RS232, 300-9600 bps asynchronous, software handshaking
Data Storage	On-board RAM
Channel Data Rate	4800 / 9600 bps, full duplex
Bit Error Rate	< 1x10 ⁻⁶ @ -108 dBm (4800 bps) < 1x10 ⁻⁶ @ -105 dBm (9600 bps)
Collision Avoidance	Trio DataCom's unique supervisory channel C/DSMA collision avoidance system
MultiStream™	Trio DataCom's unique simultaneous delivery of multiple data streams (protocols)

GENERAL	
Power Supply	13.8 Vdc nominal (11-16 Vdc)
Transmit Current	600 mA max. @ 1 W 1700 mA max. @ 5 W
Receive Current	175 mA
Dimensions	260 x 161 x 65 mm (robust metal enclosure)
Weight	1.3 kg

* Available for DR900 full duplex 1 W version (853 ± 5 MHz / 929 ± 5 MHz)

** Various sub-frequency bands available.

Note: Model codes previously known as xxxDR are now depicted as DRxxx.

designs products & solutions

Local regulatory conditions may determine the suitability of individual versions in different countries. It is the responsibility of the buyer to confirm these regulatory conditions.

Performance data indicates typical values related to the described unit. Information subject to change without notice.

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