



TRIO
DATA COM

D Series

High Performance Base Station

DB900 - Digital Base



Trio DataCom's high performance Full Duplex Digital Base Stations are ruggedised 5 Watt rack mounted versions of the D Series Digital Radio Modems.

The Trio full duplex Base Stations are a ruggedised version of the DR900 radios offering improved performance. The DB900 Base Station features dual hybrid coupled PA modules in the transmitter and dual low noise receiver preamp modules, utilising many components available in our Hot Standby versions.

Features:

- ❖ Fully integrated full duplex digital radio Base Station
- ❖ Dual hybrid coupled PA power modules in the transmitter and dual low noise receiver pre-amp module
- ❖ Overvoltage and reverse polarity supply protection
- ❖ Graphical bar LED panel displays
- ❖ Member of the **D Series** family of Data Radio Modems - providing all of the same features
- ❖ 5 Watt full duplex operation
- ❖ Unique collision avoidance facility - for unsolicited report-by-exception
- ❖ Software selectable configuration parameters
- ❖ Housed in a rugged aluminium 19" rack enclosure
- ❖ Range of ancillary equipment - half/full duplex remote radios and hot-standby base station

Radio

The **D Series** Base Station radios have been designed to meet worldwide regulatory guidelines, including FCC. 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.

Operation and Construction

The DR900 data radio form the basis of the **D Series** Base Stations, thus providing all the features and performance figures of these high performance radio modems. The use of this common radio platform ensures complete system integration.

The RF power amplifier module comes from our Hot Standby base station and is constructed from a pair of high reliability linear power modules. The two amplifiers are combined using microwave hybrid coupling techniques with no active or moving components and are hence permanently connected to the antenna.

The low noise receiver pre-amplifier also comes from our Hot Standby Base Station and uses the same techniques as the transmitter power amplifier. No active circuits or mechanical RF changeover devices are employed and the output of the LNA is fed to both radio receivers.

A display panel mounted behind the front panel houses LED array indicators showing all vital signs of the unit. The display can be de-energised when not in use to save on power consumption.

Housed in a rugged 19" rack mountable module, the **D Series** Base Stations offer excellent performance and reliability.

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Configuration

Configuration of the Base Station with 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** Base Station 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 +/- 5MHz
Channel Selection	Fully programmable
Frequency Splits	76MHz Tx/Rx frequency split available
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
Full Duplex	Continuous duty cycle
Data Rate (rf)	4800 / 9600 bps
Configuration	All configuration via Windows software

TRANSMITTER	
Tx Power	5 Watt (+37 dBm) at antenna diplexer port standard
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	Disabled or Programmable 1-60 seconds
Tx Spurious	<= -65 dBc

RECEIVER	
Sensitivity	-118 dBm for 12 dB SINAB
Blocking	> 90 dB (EIA)
Intermodulation	<= 70 dB (EIA)
Spurious Response	<= 70 dB (EIA)
Select. and Desense	65 dB (EIA)
AFC Tracking	±4 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

- ❖ Data Radio Modems (DR900)
- ❖ Standard Base Stations (DS900)
- ❖ Hot Standby Base Station (DH900)
- ❖ 6 and 9 Port Stream Router Multiplexer (95MSR)
- ❖ Network Management and Diagnostic Software (TView™)
- ❖ D Series Programming Software (DRProg™)

CONNECTIONS	
User Data Port	2 x DB9 RS232 female ports
Antenna	Type N female bulkhead (50 ohms nominal)
Power	6 pin locking. Mating connector supplied
Audio Handset	6 pin modular jack

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 @ -109 dBm (4800 bps) < 1x10 ⁻⁶ @ -106 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	4200 mA max. @ 5 Watt Plus 500 mA (max) when panel display is on
Receive Current	1000 mA
Dimensions	19" rack mount, 4RU, 485 x 180 x 460 mm
Weight	9.2 kg

** Various sub-frequency bands available.
Note: Model codes previously known as xxxDB are now depicted as DBxxx.

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.
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