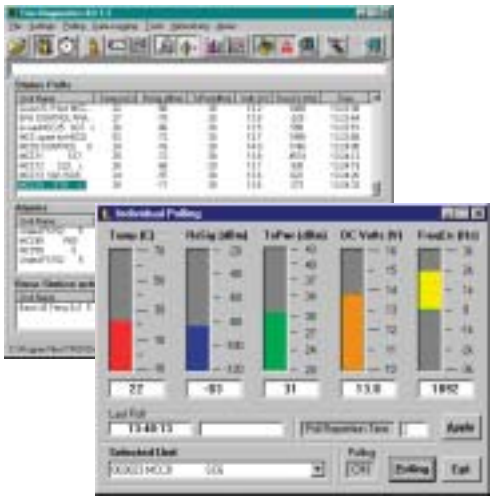
D Series

Data Radio Software

TView - Network Management and Remote Diagnostic Software



*Trio's **TView**™ Network Management and Remote Diagnostic software is implemented as an optional facility on the D Series digital wireless data modems and base stations.*

When operational, a secondary data stream is used to carry diagnostic information. This data stream is totally independent of the primary data stream. The mechanism employed to achieve this is Trio's MultiStream™ capability (see Technical Note: TN-4 Remote Diagnostics).

With the software running on a Windows© PC, any radio unit(s) within the system can be interrogated from any location in the wireless network, and will respond with diagnostic data.

The **TView** PC can interface to any spare physical port in the system, normally via "PORT B" of a D Series unit. The host computer application or remote device connected to "PORT A" continues to run simultaneously with the diagnostics data stream.

Features:

- Full SCADA style software features; database, statistics, trending, bar graphs, networking etc.
- Operates transparent to the primary user application (non-intrusive)
- Able to interrogate and display important operating parameters of each radio modem
- Provides performance data of any unit - transmitter power, received signal strength, DC volts, temperature, frequency error, etc.
- Allows statistical Bit Error Rate (BER) performance testing of any unit
- Multiple-user client-server capabilities
- Provides powerful network tools such as channel occupancy statistics, good frames received, bad frames received, packet error rate
- Can be set to background poll the radio system for continuous system monitoring & logging
- Provides full time/date stamped alarm logging/reporting, which is exportable to other database programs
- Full graphical presentation, trending, bar graphs etc.
- 32 bit Windows based user software

Operation

The diagnostics software employs a user friendly Windows menu system for the selection of operations, database access, and configuration settings. The database consists of a list of remote "addresses" and "names" for the modems on the system. The address of each remote is defined by its unique serial number. The serial numbers are entered into the diagnostic database in the PC, and enabled by the user for access to the diagnostic facilities.

Each radio unit has its own alarm parameter database. When an alarm is reported it is displayed on the user console. Alarms can be prioritised, acknowledged, logged, printed etc. To interrogate a particular unit for a measurement, the user selects the units address from a menu. Collected radio status and alarm information is stored in a database. This data can be graphically presented as a "trend" chart for analysis or fault finding.

Networking facilities are provided for multiple user client-server access to the diagnostics facility.

Network Analysis Tools

The diagnostic facilities allow retrieval of packet statistics from each radio modem. The diagnostics software uses these statistics to calculate packet and bit error rates, and also network efficiency and bandwidth utilisation. These network analysis features are an invaluable tool for larger networks.

In the transmit direction, each radio modem can report the number of data bytes transmitted, and the number of frames / packets transmitted. This enables calculation of the average frame rate, and transmit channel utilisation.

In the receive direction, each radio modem can report the number of good and bad packets received, and the number of bytes received in good packets. This enables calculation of average frame size, average frame rate, receive channel occupancy, and receive channel efficiency.

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Diagnostic Features

Trio's **TView** software runs in the 32 bit Windows environment and offers many options and configurations which are easily accessible via pop-up windows. These include group or timed polling, remote programming of all units, remote switching of duplicated base stations, viewing of databases, logging and trending of real time parameters etc.

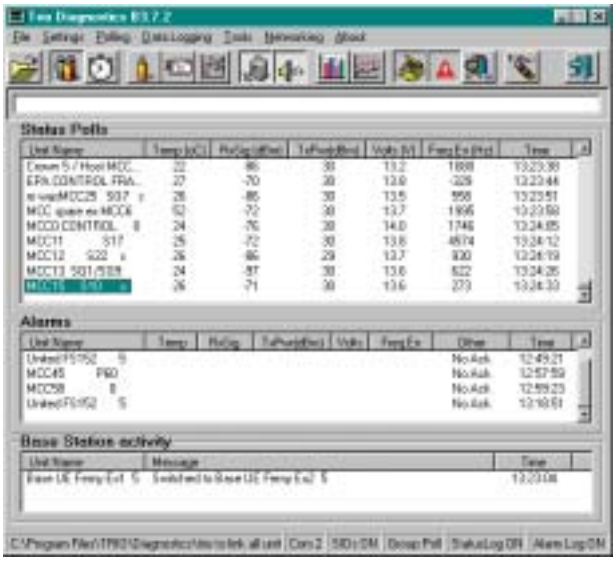
Network Diagnostic View

The main screen displays real-time level measurements from each remote device, including:

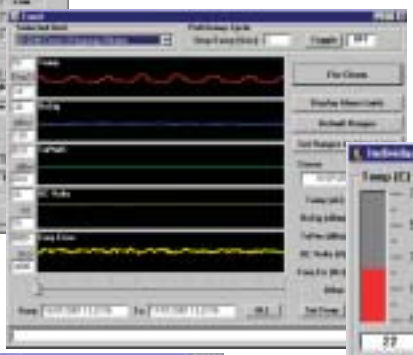
- **Status Polls:**
  Transmit Power - The actual transmitted power of the last message of the remote unit.
  RXSIG (RSSI) Measurement - The RSSI level of the last received message of the remote unit.
  Temperature Measurement - The current temperature measured by the remote unit.
  Supply Indication - The status of the power supply is returned to the interrogating unit and will also report if a power failure has occured (cold boot).
  Frequency Error - This provides an indication of an offset (drift) in the receive frequency of the modem. From this, drift in the transmit frequency can be inferred as well.
- **Alarms** - An alarm history, with cause and time of each alarm.
- **Base Station Activity** - Displays messages relating to base station module changeovers.

Remote Programming

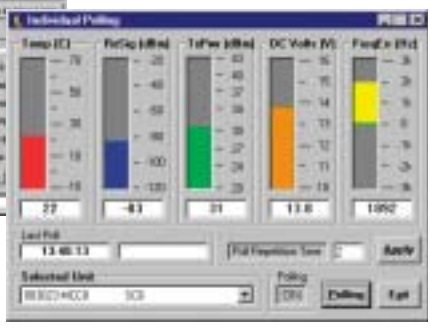
The diagnostics database also allows the user to remotely changeover a duplicated base station with real-time, on screen telemetry indication. A further message utility is provided to allow advanced remote programming support of the full diagnostics command set.



- **Radio View** - single screen view of parameters from a specified radio.



- **Trend View** - trending of parameters for any unit over a specified time interval.



- **Individual Poll** - a graphical view of individually polled units.

- **Statistical View** - the statistical data view provides statistics on channel utilisation, channel occupancy etc. of all relevant radio parameters.

Related Products

- D Series - Data Radio Modems (DR450 / DR900)
  - Hot Standby Base Station (DH450 / DH900)
  - Base Stations (DS450, DB450 / DB900)
- 6 and 9 Port Stream Router Multiplexer (95MSR)

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