



Remote Data Radio - ER450

E Series - Generation II



Introduction

The Trio DataCom ER450 is an advanced high speed digital data radio modem designed for the most complex and demanding requirements in both Point-to-Point and Point-to-Multipoint (Multiple Address Radio) SCADA and Telemetry systems.

Normally used as a half duplex high performance Remote Data Radio for communicating with the full duplex EB450 Base/Repeater or EH450 Redundant 1+1 Base/Repeater stations, the versatile ER450 also serves as a low cost full duplex base/repeater or point-to-point-link station in both TRIO E Series and M Series data radio systems with the addition of the ERFD450 option, and can provide network management access for remote diagnostics in either of these systems.

Features

Radio and Modem

- True 19,200 bps over-air data rates in 12.5kHz FCC channels (also 9600 bps) - Fully integrated radio, modem and data multiplexer
- 128-bit AES encryption (export restrictions may apply)
- 12.5 or 25kHz channel operation
- Fast data turnaround
- Simplex, Half Duplex and Full Duplex (Full Duplex with ERFD450 option)
- Compatible with legacy systems (Non Packet Digital and Bell 202 Modes)
- Full specification operation from -30 to +60C
- Hazardous Environment Certification - Class I, Division II (Groups A,B,C and D)
- Compact, rugged diecast alloy housing
- Low power consumption with sleep mode operation
- Field upgradeable firmware
- Multi-function LED Display
- Digital orderwire option
- VSWR protection

Data Ports

- Dual independent configurable data ports and separate system port
- Compatible with most industry standard data protocols. eg: MODBUS, DNP-3, IEC 870, SEL Mirrored Bits, etc.
- Selectable 300 -57.6 k bps asynchronous RS-232 interface
- Multistream™ simultaneous data streams allow for multiple vendor devices/protocols to be transported on the one radio network
- Flexible data stream routing providing optimum radio channel efficiency
- Internal repeater operation - single radio store and forward
- Channelshare™ unique integrated C/DSMA collision avoidance technology permits simultaneous polling and spontaneous alarm reporting operation in the same system

Network Management Remote Diagnostic option

(In conjunction with TView+™ Software)

- Remote fully transparent Network Management and Diagnostics
- Network wide operation from any radio modem
- Full SCADA style features such as database, trending and networking
- Over-the-air modem reconfiguration
- Full graphical presentation (HMI)

Note : Not all product features are available in every mode of operation.

Innovative and sophisticated
digital communications
designs products and solutions



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Radio

Frequency Range: 370-520 MHz (various sub-frequency bands available)

Frequency Splits: Various Tx/Rx frequency splits - programmable

Channel Selection: Dual synthesizer, 6.25 kHz channel step

Channel Spacing: 12.5 or 25 kHz

Frequency Accuracy: ± 1 ppm (-30 to +60C) (-22 to 140F) ambient

Aging: ≤ 1 ppm/annum

Operational Modes: Simplex, Half duplex or Full duplex*

Configuration: All configuration via Windows based software

Compliances:

ETSI	EN300113, EN301489, EN60950
FCC	PART 15, PART 90
IC	RS119, ICES-001
ACA	AS4295-1995 (Data)
CSA	Class I, Division II, Groups (A,B,C,D) for Hazardous Locations ANSI/UL equivalent)

Transmitter

Tx Power: 0.05 - 5W (+37 dBm) 1 dB User configurable with over-temperature and reverse power protection

Modulation: User configurable narrow band digitally filtered binary GMSK or 4 level FSK

Tx Keyup Time: <1mS

Timeout Timer: Programmable 0-255 seconds

Tx Spurious: ≤ -37 dBm

PTT Control: Auto (Data) / RTS line (Port A or B) / System Port Override

Receiver

Sensitivity: -118 dBm for 12 dB SINAD

Selectivity: Better than 60 dB

Intermodulation: Better than 70 dB

Spurious Response: Better than 70 dB

AFC Tracking: Digital receiver frequency tracking

Mute: Programmable digital mute

Diagnostics (Optional)

Network wide operation from any remote terminal.

Non intrusive protocol - runs simultaneously with the application.

Over-the-air re-configuration of user parameters.

Storage of data error and channel occupancy statistics.

In-built Error Rate testing capabilities.

Connections

User Data Ports: 2 x DB9 female ports wired as DCE (modem)

System Port: RJ45 for diagnostic, configuration and re-programming

Antenna: N female bulkhead. Separate N (Tx) and SMA (Rx) connectors for full duplex.*

Power: 2 pin locking, mating connector supplied

LED Display: Multimode Indicators for Pwr, Tx, Rx, Sync, TxD and RxD LEDs (for both port A and B)

Modem

Data Serial Port A: RS232, DCE, 600-57,600 bps asynchronous

Data Serial Port B: RS232, DCE, 300-38,400 bps asynchronous

System Port: RS232, 19,200 bps asynchronous

Flow Control: Selectable hardware / software / 3 wire interface

RF Channel Data Rate: 4800/9600/19,200 bps Half / Full duplex*

Data Buffer: 16 kbyte of on-board RAM

Bit Error Rate:
< 1×10^{-6} @ -110 dBm (4800 bps)
< 1×10^{-6} @ -108 dBm (9600 bps)
< 1×10^{-6} @ -106 dBm (19,200 bps)

Encryption: 128-bit AES encryption

Collision Avoidance: Trio DataCom's unique supervisory Channelshare™ collision avoidance system

Multistream™: Trio DataCom unique simultaneous delivery of multiple data streams (protocols)

Data Turnaround Time: <10mS

Firmware: Field upgradeable Flash memory

General

Power Supply: 13.8 Vdc nominal (10-16 Vdc)

Transmit Current: 750 mA nom. @ 1 W
1600 mA nom. @5 W

Receive Current: <125 mA nom

Sleep Mode: External control, < 1 mA

Dimensions: Rugged Diecast Enclosure
170 x 150 x 42mm
6.7 x 5.9 x 1.65 inches
With Mounting Plate
190 x 150 x 47mm
7.5 x 5.9 x 1.85 inches

Mounting: Fitted Mounting Plate

Weight: 1.27 kg (2.8lbs.)

Options

ERFD450 Full Duplex Operation with separate N (Tx) and SMA (Rx) connectors

DUPLX450BR External Duplexer, Band Reject (for single antenna operation)

EDOVM Digital Order Wire Voice Module

NEMA 4/R Stainless Steel Enclosure (IP65, NEMA 4 rated)

TVIEW+™ Configuration, Network Management and Diagnostic Windows GUI Software

DIAGS/E Network Management and Remote Diagnostics Facilities per Radio Modem

Related Products

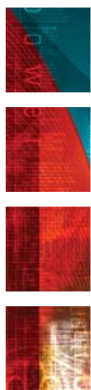
EB450 Base Station

EH450 Hot Standby Base Station

MSR/9 Port Stream Router Multiplexer

MR450 Remote Data Radio

* With ERFD450 full duplex option plus external duplexer for single antenna operation



Local regulatory conditions may determine the performance and 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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Note : Not all product features are available in every mode of operation.



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