Remote Data Radio - ER450

E Series

Features and Specifications

Trio DataCom's 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 applications.

The powerful and flexible ER450 is part of the high performance E Series data radio system products that includes the EB450 Advanced Base / Repeater and the EH450 Hot Standby Base / Repeater stations.

Features

Radio and Modem

- Fully integrated radio, modem and data multiplexer
- True 19,200 bps over-air data rates (also 4800 and 9600 bps)
- Fast data turnaround
- Simplex, Half Duplex and Full Duplex
- Broad frequency range with fully synthesized all digital radio design
- Full specification operation from -30° to + 60°C (+70°C option)
- Compact, rugged diecast alloy housing
- Low power consumption with sleep mode operation
- Insurance against obsolescence with field upgradeable firmware in flash memory
- Multi-function LED Front Panel Status Display
- Digital orderwire option

Network Management Remote Diagnostic option
(In conjunction with TView+™ Software)

- Exceptional network management tools
- Over-the-air user configuration
- Transparent Operation - simultaneous with user data
- Network wide operation from any radio terminal

Data Ports

- Two independent configurable data ports and separate system port
- Compatible with most industry standard data protocols. eg: MODBUS, DNP-3, IEC 870 etc.
- Selectable 300 -76.8 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 - buffered store and forward
- Unique integrated C/DSMA *collision avoidance* technology permits simultaneous polling and spontaneous alarm reporting operation in the same system

Innovative and sophisticated
digital communications
designs products and solutions

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Radio

Frequency Range: 330-520 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: ±1ppm (-30 to 60°C) (-22 to 140°F) ambient, Optional (-30 to 70°C) (-22 to 158°F)

Aging: <= 1ppm/annum

Operational Modes: Simplex, Half duplex or Full duplex*

Configuration: All configuration via Windows based software

Compliances:

ETSI	EN300113, EN301489
FCC	PART 15, PART 90
IC	RS119, ICES-001
ACA	AS4295-1995

Transmitter

Tx Power: 0.1 - 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 80 dB

Intermodulation: Better than 75 dB

Spurious Response: Better than 80 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.

Programmable exception reporting of alarms.

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 data LEDs (for both port A and B)

Modem

Data Serial Port #1: RS232, DCE, 600-76,800 bps asynchronous

Data Serial Port #2: 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)

Collision Avoidance: Trio DataCom's unique supervisory channel C/DSMA 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
Hardware: External control, < 1 mA
Software: User configurable modes

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

95MSR 6 and 9 Port Stream Router Multiplexer

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