2.0 Mounting and Environmental Considerations
The ER450 radio comes complete with a mounting cradle and is attached to a panel or tray by means of screws or bolts, using the hole slots provided. Note: In high power or high temperature applications, it is desirable to mount the radio with the heatsink uppermost to allow ventilation for the heatsink. The radio should be mounted in a clean and dry location, protected from water, excessive dust, corrosive fumes, extremes of temperature and direct sunlight. Please allow sufficient passive or active ventilation to allow the radio modem’s heatsink to operate efficiently.

2.1 Typical Radio Setup

2.2 ER450 Connections Layout

4.2 User Interfaces - Ports A & B
Each user port (A & B) is wired as a RS232 DCE, configurable for no handshaking (3-wire) interface, or for hardware or software (X-on/X-off) flow control. In most systems flow control is not required, in which case only 3 wires need to be connected between the radio and the application device.

4.3 Typical pins used:
- Pin 2 (RxD) - data output from the radio modem,
- Pin 3 (TxD) - data input to the radio modem,
- Pin 5 (SG) - signal ground.

Refer to User Manual for further details of other cable configurations.

10.0 Support Options
E-mail Technical Support

When e-mailing questions to our support staff, make sure you tell us the exact model number (and serial number if possible) of the Schneider Electric equipment you are working with. Include as much detail as possible about the situation, and any tests that you have done which may help us to better understand the issue. If possible, please include your telephone contact information should we wish to further clarify any issues.

Contact Details

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4.4 Activating the Transmitter
In most systems, the transmitter by default is controlled automatically by the radio when it has data to transmit. In some systems, such as full duplex point-to-point links or full duplex point-to-multipoint base stations, it is desirable to run the transmitter all the time (hot keying). Two mechanisms are provided to do this:

- The radio modem can be configured to transmit continuously whenever powered. To operate in this mode, the radio must be configured via the programming software. or

  • Refer to section 4.1 for detail on how to activate the units transmitter via the system port.

CAUTION
When the radio is configured to transmit continuously, ensure an RF load is present BEFORE applying power to the unit.

5.0 Power Supply and Protection (fusing)
The ER450 radio modem is designed and calibrated to operate from a 1.3-5.0Vdc regulated supply, but will operate from 10-16 volts (filtered) DC.
The current requirement is typically 120mA in receive mode, and will vary in transmit mode according to RF output power level (typically 0.5-1.5 amps).

CAUTION
There is NO readily serviceable internal fuse, and therefore the radio modem MUST be externally fused with a fuse and fuse holder (ER450: 3 amp fast-blow fuse).

7.0 Optimising the Antenna for VSWR and best RX signal
Once the unit is operational, it is important to optimise the antenna tuning.
In the case of a directional antenna, it will be necessary to align the antenna for the best received signal.
This can be done by using the (0-5Vdc) output on Pin 9 (see fig 11) of Port B to indicate signal strength (RSSI).
This voltage can be converted to dBm using the chart below.

8.0 LED Indicators & Test outputs
8.1 Radio is Powered
If all the LEDs are off, no power is reaching the radio modem. Successful power-up is indicated by the “TWI” LED indicating a continuous (healthy) GREEN state. Note that this LED is turned RED when the transmitter is active.

8.4 Data Flow “breakout” LEDs
There are also two LEDs to indicate data flow into and out of the two user ports.
Input data to be transmitted is shown as a RED flash, and received data to be output to the port is shown as a GREEN flash.
If data is alternately flowing in and out quickly, then the indicator data to be output to the port is shown as a GREEN flash.

8.5 Received Signal Indicator
The “RXVCO” LED is used to indicate the state of the receiver. If the LED is off, no signal is being received.
A RED indication shows that an RF carrier is being received, but no data stream can be decoded. This may indicate the presence of interference, another user on the channel or incorrect configuration.
A continuous GREEN indication shows that the modem is locked and synchronised to the incoming signal, and has excellent Bit Error Rate (BER). Any losses of synchronisation (BER errors) are shown as a visible RED flicker of the LED.
Note: This may only be apparent on a PTMP slave when receiving.

9.0 Verifying Operational Health
It is possible to verify the operation of the radio modem using the indicators provided by the unit. The state of the transmitter and receiver, and data flow can be interpreted by the indicator LEDs (see below).

10.0 T VIEW+ Management Suite - Radio Configuration
This TVIEW+ Management Suite allows a number of features including Configuration (Local - serial, or Remote - over-the-air), Remote Diagnostics/Measures and Firmware Upgrades.
The configuration wizard can be used to provide Quick Start generic templates for the types of systems architecture you wish to employ:
Example: Local configuration session -
1. Attach the programming cable from the PC to the System Port of the radio (see fig 10 & 11)
2. Launch TVIEW & Select “Programmer”
3. Select “Read” the radio
4. Change the configuration as required
5. Select “Write” the parameters back to the radio Refer to User Manual for detailed operation of advanced features.

Important Notices for Class I, Division 2, Groups A,B,C&D Hazardous Locations

This product is available for use in Class I, Division 2, Groups A, B, C & D Hazardous Locations. CSA certification is in accordance with CSA Standard C22.2 No. 213(M1)87 and UL Standard 1604 subject to the following conditions of approval:
1. The radio modem must be mounted in a suitable enclosure so that a tool is required to gain access for disconnection of antenna, power and communication cables.
2. The antenna, DC power and interface cables must be routed through conduit in accordance with the National Electrical Code.
3. Installation, operation and maintenance of the radio modem should be in accordance with the radio modem’s user manual and the National Electrical Codes.
4. Tampering or replacement with non-factory components may adversely affect the safe use of the radio modem in hazardous locations and may void the approval.
5. A power connector retainer with thumbwheel screw as supplied by Trio Datacom MUST be used.

WARNING EXPLOSION HAZARD
Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous. Substitution of components may impair suitability for Class I, Division 2. Refer to Articles 500 through 502 of the National Electrical Code (NFPA 70) and Section 18 of CSA C22.1 for further information on hazardous locations and approved Division 2 wiring methods.