

SATELLINE Radio Data Modems

TROUBLE SHOOTING

CHECK LIST

- cables
- antenna
- power supply
- modem

CABLES

- ✓ operating voltages switched OFF before connecting RS-interface cable
- ✓ wiring between modem and DTE is correct
- ✓ RF-cable and connectors are undamaged

ANTENNA

- ✓ impedance and SWR-ratio
- ✓ line of sight
- ✓ RSSI-signal
- ✓ possible interference sources

POWER SUPPLY

- ✓ stable power supply
- ✓ current capability (minimum 10W with EPIC 50W)
- ✓ operating voltage 9-30V (EPIC 12V)

MODEM

- ✓ DTR-line connected
- ✓ settings of the radio modem must correspond to settings of the terminal
- ✓ radio frequency

MODEM (continued)

- ✓ channel spacing
- ✓ data field length
- ✓ error check
- ✓ FEC (Forward Error Correction)

MODEM (continued)

- ✓ addresses
- ✓ protocol used (Profibus, Modbus etc)
- ✓ enviromental conditions

Test Methods

1. Led indicators

- state of signals at the serial interface

Led	signal direction at the modem	State of leds at TX	State of leds at RX	Noise or unknown signal on the channel	Test mode
RTS	in				
CTS	out	●		●	
TD	in	●			
RD	out		●		
CD	out	●	●	●	● / ●

Test Methods

2. Monitoring contents of data messages
 - data analyser connected to the serial line
 - important to know the data protocol
 - data communication with test data
3. Oscilloscope measurements at serial port
 - exploring timing at TD and RD lines
(inter-character breaks, delays, etc.)
 - electrical levels of the signals
 - supply voltage variations
 - RSSI output (RX signal level, noise level)

Test Methods

4. RF measurements

- VSWR of the antenna system
- TX output power
- level of the RX signal
- interfering radio signals
- filter responses

5. Device replacements

- find faulty units