Product Overview

The MTL WMO-900S radio modem provides RS232 or RS485 connections by radio. It is a low cost wireless alternative for linking PLC’s, data loggers, supervisory computers and intelligent transducers.

The WMO-900S has been designed to be easy to use and simple to install. It uses a 900MHz spread spectrum radio which does not require a radio licence in many countries. The module is fully integrated with radio, power supply, serial ports and microprocessor controller housed in a strong industrial aluminium case.

Features

• Provides wireless connectivity for serial devices
• Licence-free 900MHz radio band
• Single hop distance 20 miles line-of-sight
• Repeater function for longer distances
• Radio data rate up to 115,200 bits/sec
• RS232 / RS485 up to 115,200 bits/sec
• Fast point-to-point mode
• Low power mode with DTR control
• On-line “dial-up” control using AT commands
• Repeater functionality in all units
• Repeater routing via address selection
• Security against cross-talk between systems
• Provides wireless connectivity for serial devices
• Forward error correction, CRC error checking with ARQ
• Turn-around time 5 msec
• Radio signal strength and BER indication
• Transparent broadcast mode, peer to peer
• Configurable on-line by Hayes AT commands or Windows configuration software
• Addressed mode, multipoint and point-to-point
### SPECIFICATION

**RADIO TRANSCEIVER**  
Frequency hopping, spread spectrum transceiver

**Frequency**  
- **USA/Canada**: 902 - 928MHz  
- **Australia**: 915 - 928MHz  
- **NZ**: 921 - 928MHz

**Hop sequence**  
16 x 50

**Transmit Power**  
1W

**RSSI**  
-60 to -120dBm

**Expected line-of-sight range (depends on local conditions)**  
- **USA/Canada**: 32km+ (20 miles+)  
- **Australia/NZ**: 20km+ (12 miles+)

**RF Data Transmission Rate**  
19,200 baud, 57,600 baud, 115,200 baud (selectable)

**Antenna connection**  
SMA coaxial

**SERIAL PORT**

**Data rates**  
1200 to 115200 baud  
RS232 and RS485 standard interface connections provided, each connected to the same serial port

**Format**  
Asynchronous, non-return-zero (NRZ)

**Characters supported**  
7 or 8 data bits, even/odd/no parity, 1 or 2 stop bits

**RS232 connection**  
Full duplex operation as a DCE device with RTS/CTS hardware handshaking - standard D9 connector.

**RS485 connection**  
Half duplex operation for twisted-pair multidrop networks.

**Input and output buffers**  
2 kbyte

**DATA TRANSMISSION**

**Transparent mode**  
Data is transmitted with a system and group address. Data transmission begins as serial data is received – maximum packet size is 530 bytes. All modules, with correct system address, which receive the data packets, outputs the data - error checking is optional.

**Controlled mode**  
Data is transmitted in packets with a system address, source address, destination address, up to five intermediate repeater addresses, and a 16 bit CRC error check. If the packet is received with a correct error check, only the destination module will output the data and will also return an ACK transmission. If the source module does not receive the ACK, it will retry a further four times. DCD provides communications status. Auto-connect and dial-up-control modes are available.

**Flow control**  
CTS/RTS provided based on input buffer availability.

**CONFIGURATION AND DIAGNOSTICS**

Configuration by freeware software package or by Hayes AT commands. Radio noise, signal strength and bit error rate (BER) diagnostics included. Radio signal strength value available on-line to host device.

### POWER SUPPLY

**Input**  
- 10 - 30V DC or 10 - 24 V AC

**Normal current drain**  
70mA @ 12V DC or 50mA @ 24V DC

**Current (when transmitting)**  
350mA @ 12V or 250mA @ 24V DC

**Low power mode current drain**  
20mA @ 12V DC or 15mA @ 24V DC

### GENERAL

**Environmental**  
**Temperature**: -40 to +70°C  
**Humidity**: 0 – 99% RH non-condensing

**EMC compliance**  
To FCC Part 15 Class A

**Housing**  
Powder-coated, extruded aluminium

**Dimensions**  
114 x 185 x 30mm

**Mounting**  
'T' section 35mm DIN rail to EN 50022

**Terminals**  
Pluggable terminal block with up to 12AWG (2.5mm²) capacity

**LED indication**  
Unit OK, radio TX and RX, serial TX and RX, DCD (comms OK).

### ORDERING INFORMATION

**WMO-900S-US**  
902-928MHz, 1W, FHSS serial modem

**WMO-900S-AU**  
915-928MHz, 1W, FHSS serial modem

**WMO-900S-NZ**  
921-928MHz, 1W, FHSS serial modem