technical datasheet

WMO-800S Series

High Speed Industrial Radio Modems

- Provides wireless connectivity for serial devices

- Licence-free 869MHz radio band

- Single hop distance 5 km line-of-sight

- Repeater function for longer distances

- Radio data rate up to 76,800 bits/sec

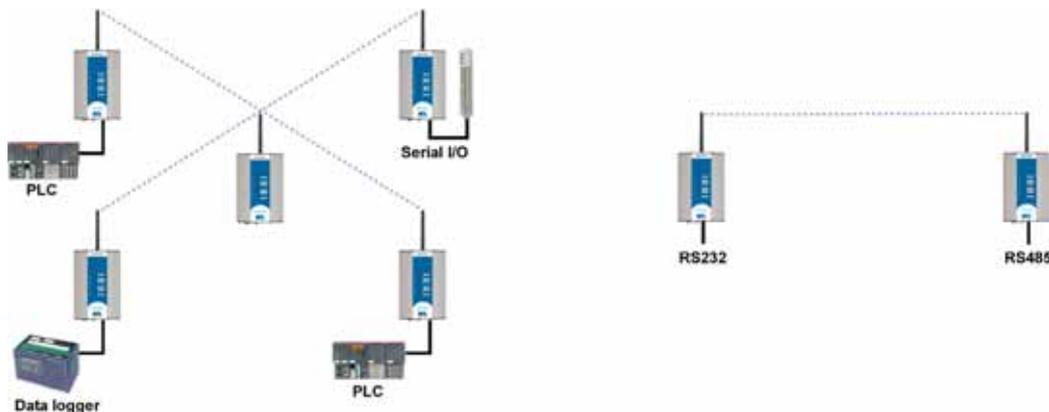- RS232 / RS485 up to 115,200 bits/sec

Overview

The MTL WMO-800S 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-800S has been designed to be easy to use and simple to install. It uses a low power 869MHz radio which does not require a radio licence in most European countries. The module is fully integrated with radio, power supply, serial ports and microprocessor controller housed in a strong industrial aluminium case.

Features

- 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

- 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

COOPER Crouse-Hinds

SPECIFICATION

RADIO TRANSCEIVER

Single channel, synthesised transceiver

Frequency
869.4 - 869.65MHz, 250kHz channel

Transmit Power
500mW

RSSI
-60 to -120dBm

Expected line-of-sight range
5km at 19200 bits/sec
Range may be extended by:-
- up to five intermediate repeaters for controlled mode
- unlimited repeaters for transparent mode

RF Data Transmission Rate
19200 baud, 38400 baud, 76800 baud
Conforms to EN 300 220

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
2kbyte

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 - 24V 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 +60°C
Humidity: 0 – 99% RH non-condensing

EMC compliance
To ETS 300 683

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 (2.5mm^2) capacity

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

ORDERING INFORMATION

WMO-869S	EU 869.525 MHz serial modem, 500mW
WMO-869S-L	EU 869.875 MHz serial modem, 5mW