

Adapt-MicreINET™ ISM Band Reference Design and Ready-to-Go Module

The Adapt-MicreINET low power, RF networking solution includes a family of low cost ISM band RF node reference designs. As a result of a collaboration between Cyan, and Adaptive Modules Ltd, these are also available as ETSI/FCC approved ready-to-go modules with a fast turnaround development system.

The first of these, the Adapt-MicreINET™, is based on the Cyan eCOG1kG microcontroller and the Radiowire® family of transceivers from Micrel and runs Cy-Net, an extended version of the proprietary network protocol, Micrelnet®. It is available, implemented as a module part number AM001 from Adaptive .

With its flexible hardware interface, for the acquisition and control of a wide range of signals, the AM001 can be part of a standalone RF network, or it can be retrofitted to an existing network of devices that require wireless communication. The development system enables the rapid design of complete solutions with no prior knowledge of RF design, RF standards, or networking. Cy-Net can be easily and quickly customised to provide features beyond the scope of competing standards-based solutions. Unused memory, processing power and peripherals are available for use in customers' own application.

Design documentation (software, bill-of-materials, & gerber files) can be made available to customers wishing to incorporate the CyanT into their own designs either wholly or in modified form.



AM001 CyanT Module



AM001 Module on Carrier Board

RF Features

- 915/868/433MHz options
- >600m range without amplification
- 15Kbp/s data rate (shared amongst complete network), 200Kbp/s under development
- Co-existence with 2.4GHz Bluetooth and WLAN

RF-Solved Software Features

- Customizable, small footprint Cy-Net stack with support for:
 - Frequency hopping, static star/multi-level cluster networks
 - Port communication between applications
 - Power management, with active listening
 - Carrier Sense Multiple Access (CSMA) with Listen Before Talk (LBT)
 - Reliable and unreliable data paradigms
 - Autoconfiguration of nodes and routing
 - Self forming network capability * (with name based addressing)
 - Network self healing *
- * available Q4 2007
- AT command interface
- Full featured CyanIDE software development environment
- Production Programming

AM001 Hardware Features

- Integrated eCOG1k MPU with Micrel Radio wire transceiver module
- Small (50mm * 25mm) form factor
- Carrier board available for easy evaluation and communication
- 30 pin interface including:
 - 3 ADC inputs
 - 8 general purpose digital I/O, or 1 8-bit digital port or, 8 capture timer/trigger inputs
 - 1 Uart
 - 2nd Uart with handshaking, or 2 PWM outputs and 2 digital I/O, or 4 digital I/O

AM002 Development Carrier Board Features

- eICE programming/debug port
- Serial I/O

Low Power operation

- Power consumption of:
 - 180uA overall average
 - 5-6uA in shutdown mode
 - <300uA standby mode
 - 36mA listening
 - 46mA transmitting
- Signal strength measurement and power control based upon signal strength