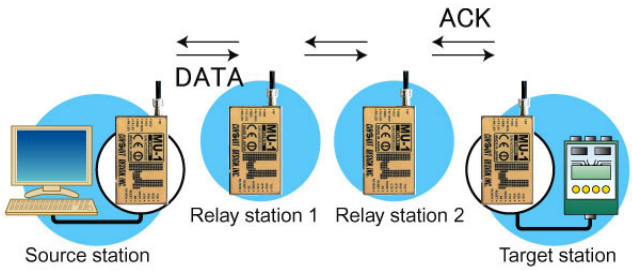
Press Release

April 20, 2005

Embedded low power radio modem with a new relay function

Long range embedded low power modem MU-1 434MHz for industrial applications.

Circuit Design, Inc., the leading supplier of narrowband radio modules, has updated the MU-1 low power radio modem launched last year with new relay and communication margin measurement functions.



With the new relay function you can now achieve long distance communication (1 leg about 600 m) using a maximum of 10 relay stations, with the 10 mW output authorized for the European harmonized ISM 434 MHz license exempt band. This enables a broader range of industrial applications such as data acquisition over wide areas and control of equipment placed in remote locations.

The MU-1 is a serial data communications modem designed to offer the reliability, shock resistance, vibration resistance and high quality required for use in industrial applications. The MU-1 uses the UART serial interface to interface with the host system, while data input/output is performed with simple commands.

The new relay function is achieved by issuing these same dedicated commands from the source station. Not only can you transmit and receive system data over a relay, you can also remotely set system channels from the source station.

In addition, we have added a new command for measuring the communication margin. For example, you can remotely check the field strength (signal level and floor noise) of target stations in remote locations with commands from the source station. In addition, we have provided a convenient command for measuring packet success rate. Since you can easily check the status of each station, it is possible to devise a design that achieves optimum performance at the equipment design stage. And because you can locate the equipment optimally for the radio wave environment, you can ensure more stable, reliable communication at the equipment installation stage too.

The MU-1 comes with flexible Link IDs that allow you to build 1:1, 1:N, and N:N systems so that combined with the relay function, it is possible to build anything from simple systems to complex systems optimized for a wide range of applications.

Operating at low voltage with a low consumption current, the MU-1 is ideal for battery operated applications. In addition, it has an operating temperature range from -20 to 60ºC thanks to our unique temperature compensation circuit.
Wireless data rate: 9,600 bps. Conforms to EN-300 220. MU-1 single unit price Euro 225.
An RS232C interface kit, USB interface kit, and LAN interface kit are also available to support a variety of interfaces.

Please visit http://www.cdt21.com/products/modem/mu1/default.asp for more information about the MU-1.

(Attachments)
MU-1 Specifications
Application example: Data acquisition at a golf course

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MU-1 Specifications

General specifications — Temperature conditions: +25ºC ± 5ºC

Items	Specifications	Remarks
Standard	R&TTE Directive EN1999/5/EC	CE mark acquired
Antenna power	Within 8 mW +20% -50%	Contact (50 Ω)
Communication method	Half-duplex or one-way	
Modulation system	Binary FSK	
Radio communication speed	9,600 bps	
Frequency range	433.2000 to 434.7750 MHz	
Number of channels	64	Channel span 25 kHz
Receiver sensitivity	-108 dBm	Packet error rate 0.1% (255 bytes/1 packet)
Operating temperature	-20ºC to +60ºC	
Operating voltage	3.0 V to 5.0 V	Absolute maximum rated voltage 5.5 v
Consumption current	Transmitting: 46 mA / Receiving: 32 mA	When the supply voltage is 3 v
External dimensions	50 mm × 30 mm × 9 mm (W × D × H)	Not including the antenna.
Unit weight	23.5 g	

Reference data
* Effective radio communication speed: About 6,800 bps / Conditions: one-way communication, no error correction, 25ºC
* Range: About 600 m / Conditions: one-way communication, no error correction, 25ºC, line of sight distance, ground level of 1.5 m, vertical antenna

UART interface specifications

Communication method	Serial communication (RS232C format)
Synchronization	Start-stop (asynchronous)
Data speed	1,200 / 2,400 / 4,800 / 9,600 / 19,200 / 38,400 / 57,600 bps
Flow control	RTS/CTS hardware flow control
Other parameters	Data length 8 bits, no parity, stop bits 1 or 2

Application example: Data acquisition at a golf course