

Low-power embedded radio modem with Reed-Solomon error correction for long-range applications

Circuit Design, Inc., the leading supplier of narrowband radio modules, has recently developed and released a 434 MHz low-power radio modem, the MU-2-R.

Circuit Design's MU series are modems for embedding in industrial equipment. They incorporate the RF circuit required for radio communication and a CPU for control, and data is exchanged with an external CPU using the UART serial interface based on commands. The MU-2-R is also supplied with an antenna. This complete solution allows you to develop equipment quickly using built-in radio, without having to pay much attention to the high frequency element.



The MU-2-R is now 55% smaller than the earlier models, and is offered at a lower price. The MU-2-R also features FEC (Forward Error Correction) employing Reed-Solomon code that is used in satellite communications and compact discs. This ensures highly reliable radio communication even with a weak electric field or when burst noise is present. Designed for narrow band FM and with high receiver sensitivity, the MU-2-R has a communication range of 600 m (line-of-sight) with the 10 mW output authorized for the European harmonized ISM band. In addition, the built-in relay function enables wide-area telemetry systems and remote control applications covering several kilometers using battery-powered operation with 10 mW output.

Circuit Design, Inc. will start shipment of mass-produced products from March 2009. Samples cost 15,300 yen, and the unit price for a 1,000-unit lot is 5,800 yen.

The features of the MU-2-R are explained below.

- Most of the parts required for radio communication are built in
The internal CPU handles all processes required for radio equipment design, including PLL control, insertion of preambles, wireless data links, and data input/output timing control.
- Commands for measuring radio communication integrity
In order to check communication integrity in the design stage and when the equipment is actually installed in the field, the MU-2-R is provided with commands for measuring the electric field intensity of the received signal and floor noise. You can also remotely check the electric field intensity of units placed in a distant location using commands.
- Convenient functions enabling multiple networks
The MU-2-R is preprogrammed with 127 radio frequency channels. You can also choose between 10 mW and 1 mW output.
Flexible link IDs allow you to build 1:1, 1:N, and N:N systems. In addition, the relay function lets you cover a wider area. Besides remotely measuring the radio wave environment where the unit is installed, you can also change the frequency of the unit.
- Develop products suitable for both Japanese and European markets
The MU-2-R was first launched in the Japanese market where it has been very well received. It has received Technical Standard Conformity Certification in Japan and does not require any new radio authorization testing.
The frequency of models for the Japanese market is 429 MHz.
- Various interfaces
RS-232 and USB interface boards are available to simplify development of MU-2-R systems.

Product specification: <http://www.cdt21.com/products/modem/mu2/>

High resolution images : <http://www.cdt21.com/dl2/pr/index.asp>

About Circuit Design

Circuit Design, Inc. designs and supplies low power radio modules for various application fields such as telecontrol, telemetry, alarms, serial data transmission and audio. The products comply with European ETSI, US FCC and Japanese ARIB standard.

Quality is assured with an ISO9001-certified design and manufacturing process based in Japan.

Enquiries | Development | Manufacturing

Circuit Design, Inc., International Business Division
7557-1 Hotaka, Azumino, Nagano 399-8303, Japan
TEL: +82 (0)263-82-1024 / FAX: +81 (0)263-82-1016
e-mail: info@circuitdesign.jp
URL: www.circuitdesign.jp