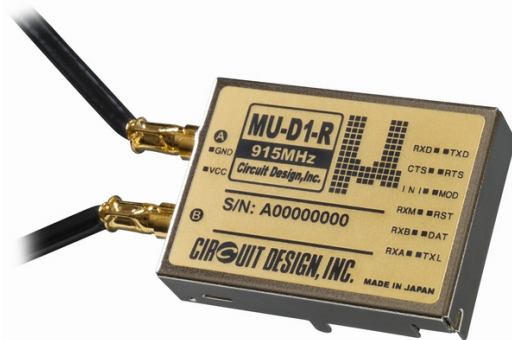


## Circuit Design, Inc. announces the release of an FCC Part 15 compliant industrial-use DSSS true diversity radio transceiver modem for the U.S. market

Circuit Design, Inc. has announced the release of the MU-D1-R 915 MHz, an embedded low power radio transceiver modem for industrial use that complies with U.S. FCC Part 15.247.

Circuit Design, Inc. will exhibit the product at the Electronica trade fair in Munich, Germany in November and start shipment of samples at the same time.

The MU-D1-R operates in the U.S. ISM band frequencies (902 to 928 MHz). Designed to be embedded in equipment, this radio modem was developed for industrial applications that require stable and reliable operation. It has a low consumption current, so it achieves line of sight radio communication beyond 300 m with battery operation.



Besides using highly noise-resistant direct-sequence spread spectrum (DSSS) modulation, the modem has a true diversity receiver function with two receiver circuits for preventing signal dropout due to multi-path fading. This ensures highly stable and reliable radio communication in the congested 902 to 928 MHz ISM band which is used by various types of equipment. With 20 frequency channels, it can be used in several radio systems. The modem operates at low power (55 mA / 5 mW when transmitting and 58 mA when receiving) and with its small size (36 x 26 x 8 mm), it can be built into units that require battery operation.

In addition to the CDP series transmitter and receiver modules and STD/LMD series transceiver modules which are highly regarded in the Japanese and European markets, Circuit Design offers the MU series radio modem with a built-in wireless protocol to enable the input/output of data with simple commands. With its built-in CPU, the MU series performs wireless-specific high frequency control for UART communication with an external microcomputer. As a result, it shortens development time significantly and reduces the number of product parts. In addition, the built-in protocol makes networking simple, and besides applications that require reliability and real time control such as industrial remote control, it is expected to be used in a wide range of low power industrial applications such as monitoring systems where battery operation is required.

The features of the MU-D1-R are explained below.

1. Control of the UART interface using dedicated commands
  - The UART serial interface is used for the user interface
  - Transmitting and receiving data, and changing and setting communication parameters and Link IDs is possible using dedicated 2-character commands.
2. A highly reliable, industrial use modem
  - Direct sequence spread spectrum for superior noise resistance: 15 chips
  - Instead of simple antenna switching type diversity, the modem uses a true diversity receiver circuit with two built-in receiver circuits.
  - Wide operating temperature range (-20 to +65°C) TCXO built in
  - All high frequency circuits are enclosed inside the shield case
3. Low power operation
  - A low power system that can run on batteries (transmitting: 55 mA, receiving: 58 mA)

#### Main Specifications

- Relevant specification FCC Part 15.247
- Frequency 905.5 to 924.5 MHz
- Number of channels 20
- Output Switchable between 5 and 40 mW
- Data rate 40 kbps (interface) 600 kbps (wireless 40 kbps x 15 chips)
- Operating temperature -20 to +65°C
- Operating voltage 4 to 5 V
- Operating current TX: 55 mA / 5 mW, 130 mA / 40 mW RX 58 mA
- Size and weight 36 × 26 × 8 mm / 13 g

#### Applications

- Remote control of industrial equipment
- Low power telemetry and monitoring systems

#### Unit price

Sample 14,000 yen      6,200 yen in 1,000 unit lots

#### 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.

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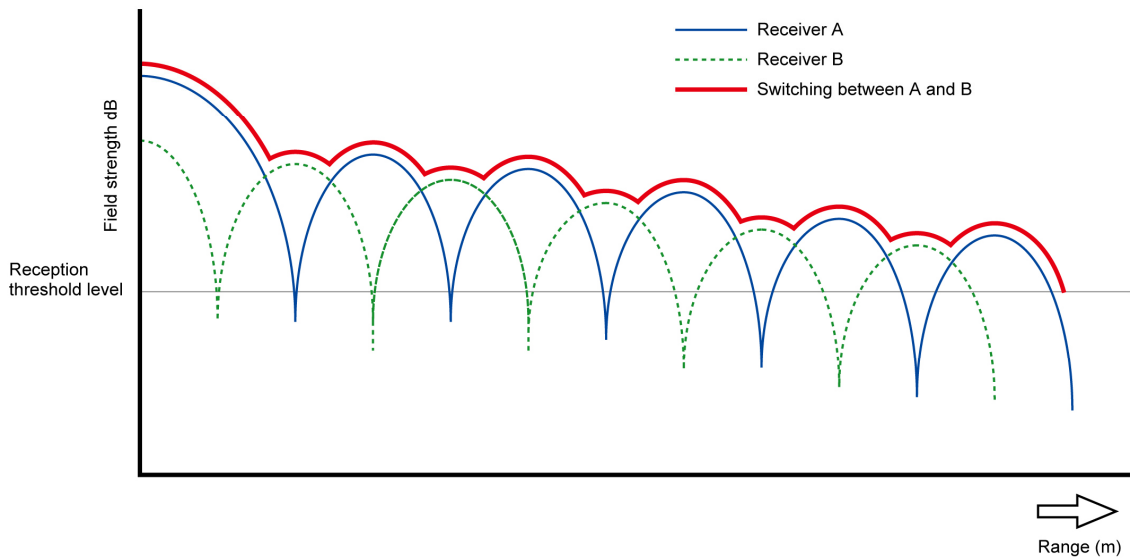
Enquiries | Development | Manufacturing

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

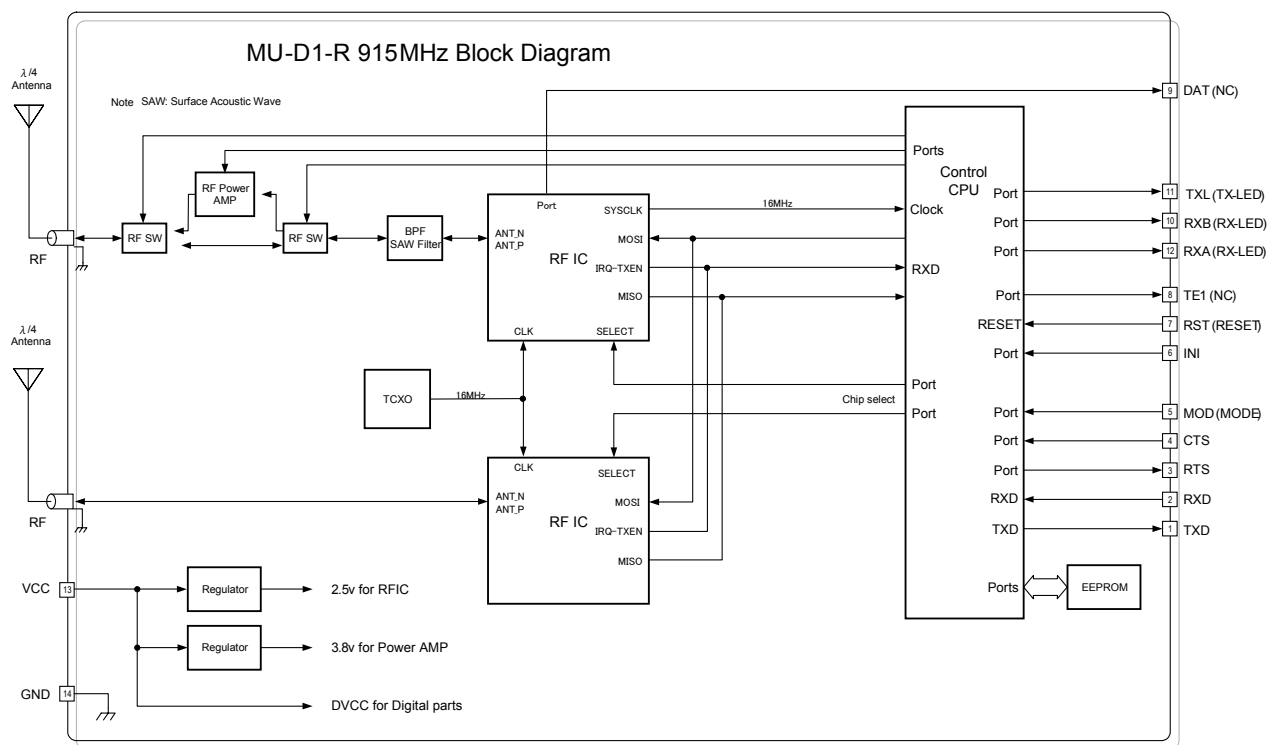
Reference

Diagram of the diversity receiver

Diversity reception system



Block diagram of the product



Download the image

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