

FCC Part 90 Narrow Band Multi Channel Radio Transmitter / Receiver for Industrial Use

New addition to our lineup of industrial use radio modules for the US

Circuit Design, Inc. the leading narrowband radio module supplier, has developed and released the CDP-TX-02E-R and CDP-RX-02E-R radio modules for the US market. The modules are designed for embedding in industrial equipment. The EU version of the modules released earlier has been very well received in the European market.

The CDP-TX-02E-R and CDP-RX-02E-R include nearly all the parts necessary for radio transmission in a small and robust shielding case, making it possible for the user to reduce the development time of radio equipment significantly. With narrow band FSK modulation, the modules are very resistant to noise. The receiver also has high receive sensitivity, offering stable operation even in weak electric fields. The modules achieve a line-of-sight communication distance of more than 600 m with only 10 mW power. While the modules are small, they feature high frequency characteristics that guarantee high reliability, as well as resistance to mechanical vibration and shock. In Europe, they are widely used in applications that place emphasis on safety and reliability, such as industrial remote control. Now, in response to requests from many users, we have developed a model for the US.



The US model (457 MHz) and European model (434 MHz) are pin compatible, enabling users to develop products for both American and European markets with a common interface^{*1}. The equipment has received wireless authorization, obtaining CE authorization for the European model and FCC authorization for the US model (Transmitter: FCC Part 90^{*2}, Receiver: Part 15 equipment authorization).

Radio frequency can be selected from 32 preprogrammed channels in 25 kHz steps, or by setting an arbitrary frequency channel. The modules have a wide operating temperature from -20°C to +60°C, suitable for indoor and outdoor use. With strong blocking performance and selectivity, the modules offer high reliability and stable operation even in environments with a lot of noise.

*1 There are differences in the maximum data rate (4,800 bps / 434 MHz, 2,400 bps / 457 MHz) etc. For details, refer to the manufacturer's data sheet.

*2 CDP-TX-02E-R 457 MHz holds equipment authorization for transmitting equipment under Title 47 of the Code of Federal Regulations Part 90. A license is required for use in the USA.

The features of CDP-TX-02E-R / CDP-RX-02E-R 457 MHz are as follows.

- Part 90 compliant radio transmitter
- Narrow band FSK 25 kHz step / 32 RF channels
- 1 mW/10 mW RF output selection
- Battery operation is possible 3 V 43 mA (10 mW), 33 mA (1 mW)
- Highly reliable receiver
 - Double superheterodyne receiver circuit
 - High receiver sensitivity: -120 dBm (12 dB SINAD / BER 1%)
 - Blocking: 84 dB (+/- 1 MHz)
 - Adjacent channel selectivity: 60dB
- Operating temperature range from -20 to 60°C using a TCXO-based temperature compensation circuit

- Achieves stable operation with all high frequency circuits required for transmitting and receiving enclosed inside the casing
- Transmitter size: 36 × 26 × 10 mm, receiver size: 50 × 30 × 9 mm

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: 0263-82-1024 / FAX: 0263-82-1016
e-mail: info@circuitdesign.jp
URL: www.cdt21.com