

Remote Control Demonstration Board

Graphics, mTouch™, USB and RF4CE Wireless in a Single Demo

Overview

Universal remote controls are becoming an ever-present device for controlling consumer electronics. RF based remote controls are becoming more prevalent for several reasons; two-way communication is possible, “line-of-sight” is not a requirement and RF4CE is gaining popularity as a wireless protocol for consumer electronics.

A high-end remote control typically has a graphics display, a number of keys or switches and a radio to communicate with the target devices. Microchip's Remote Control Demo Board demonstrates an integrated solution of Microchip's Graphics Library, mTouch™ Library and RF4CE Library running on one 16-bit microcontroller. The radio used for the RF4CE is a MRF24J40MA, 2.4 GHz transceiver. The wireless transceiver communicates with the ZENA™ Wireless Adapter which runs a GUI on the computer.

Benefits of the Demonstration

- Combines graphics, mTouch, USB and RF4CE
- High system integration with PIC24 “DA” family
- Simple hardware layout
- Integrated software libraries
- Schematics, BOM and source code

Rich Featured Remote

Low Cost Graphics – PIC24FJ256DA210

- Process and render graphics without utilizing MCU MIPS
- Graphics processing units for hardware acceleration
- Color lookup table enables 16-bit color depth with less RAM usage
- Cost savings using internal 96 KB RAM for frame buffer
- Integrated USB Connectivity and mTouch sensing
- PIC24F running software libraries for graphics, mTouch, USB and RF4CE

Stylish and Modern User Interface

- Colorful 3.5” QVGA graphical display
- Resistive touch screen and mTouch keys

mTouch™ Sensing

- Analog resistive touch screen for on-screen menus
- Capacitive touch keys with plastic overlay using Charge Time Measurement Unit (CTMU) on MCU
- Touch controller algorithm integrated into main MCU

Wireless RF4CE – MRF24J40

- 2.4 GHz IEEE 802.15.4 radio transceiver
- RF4CE is standardized specification for RF based remote controls
- No need for line of site requirement
- Easy pairing with the target device



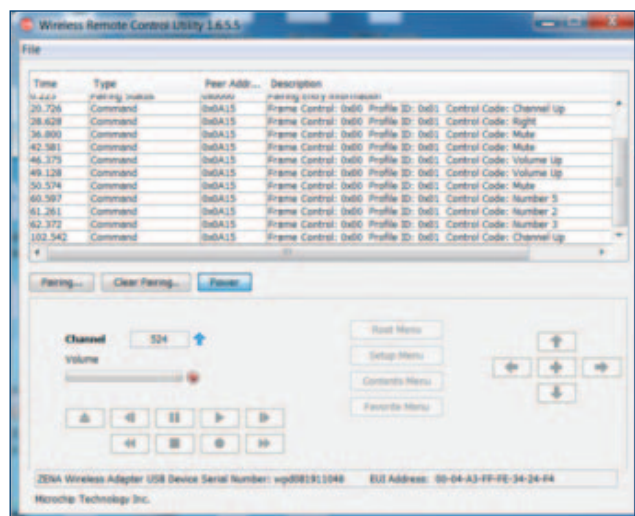
- Bi-directional secure link with AES-128 encryption
- Long battery life

ZENA™ Wireless Adapter

- Multi-function Universal Serial Bus (USB) wireless adapter
- Connects the computer as an RF target node to the network
- Functions can be programmed into the adapter using the USB boot loader
- Firmware applications can be updated from Wireless Development Studio, Wireless Remote Control Utility and other supported applications

Wireless Remote Control Utility (WRCU)

- Runs on target computer
- Used for pairing remote to ZENA Adapter
- Acknowledges button presses from graphics touch screen and mTouch keys to verify RF communication



MICROCHIP

Remote Control Demo Board Kit (DM240315-2)

- Remote control demo board
- ZENA™ wireless adapter 2.4 GHz with MRF24J40
- Get software set-up instructions from:
www.microchip.com/remotecom

Microchip Enables Fast Time to Market

Microchip's remote control demo board makes it easy to create products that include touch screen and advanced graphics. This board demonstrates a remote control populated with a PIC24FJ256DA210 MCU, a 3.5" Graphical TFT LCD with resistive touch screen, a MRF24J40 2.4 GHz transceiver and a ZENA wireless adapter which interfaces with the GUI on the computer, providing a template for a developers' own designs. Additionally, Microchip offers one-stop-shopping for all of the devices needed to build a RF4CE Advanced Graphic Remote Control.

Ordering Information

Part Number	Description
DM240315	Remote control demo board
DM240315-2	Remote control demo board with ZENA™ wireless adapter

For More Information

Visit www.microchip.com/remotecom to download documentation, software, schematics and the wireless remote control PC utility for this demo.



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www.microchip.com/remotecom

Visit our web site for additional product information and to locate your local sales office.

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