



Embedded Control

802.11b (Wi-Fi) Application Kit Getting Started

Application Kit Contents

- *Dynamic C* CD-ROM, with complete product documentation on disk.
- CD-ROM with sample program and information related to Application Kit.
- RCM3100 module.
- Prototyping Board, with a bag of accessory parts for use on the Prototyping Board.
- Linksys WCF12 Wireless CompactFlash Card with Adapter Board to allow use with Prototyping Board.
- AC adapter, 9 V DC, 1 A (included only with Development Kits sold for the North American market). A header plug leading to bare leads is provided to allow overseas users to connect their own power supply with a DC output of 7.5–30 V.)
- 10-pin header to DE9 programming cable with integrated level-matching circuitry.
- Cable kits to access RS-485 and analog input connectors on Prototyping Board.
- *RCM3100 Getting Started* manual.
- *Getting Started* instructions and Application Note.
- *Rabbit 3000 Processor Easy Reference* poster.
- Registration card.

Installing Dynamic C

If you haven't yet installed Dynamic C, insert the Dynamic C CD from the Application Kit in your PC's CD-ROM drive. If the installation program does not auto-start, then run the **setup.exe** program in the root directory of the Dynamic C CD. Install any Dynamic C modules and the supplementary CD after you install Dynamic C.

Hardware Connections

1. Install RCM3100 and Wi-Fi on Prototyping Board

Turn the RCM3100 module so that the mounting holes on the RCM3100 and on the Prototyping Board line up, as shown in Figure 1 below. Align the module headers J1 and J2 into sockets J12 and J13 on the Prototyping Board. Press the module's pins firmly into the Prototyping Board headers.

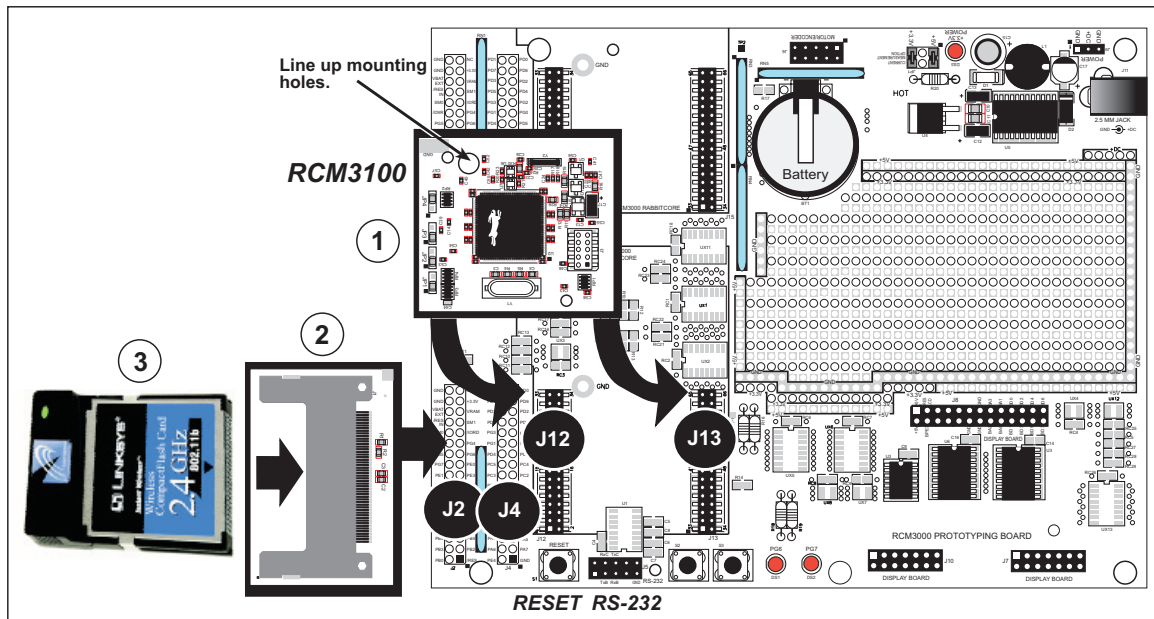


Figure 1. Install the RCM3100 and Wi-Fi on the Prototyping Board

NOTE: It is important that you line up the pins on the RCM3100 exactly with the corresponding pins of the sockets on the Prototyping Board. The header pins may become bent or damaged if the pin alignment is offset, and the modules will not work. Permanent electrical damage to the modules may also result if a misaligned module is powered up.

Next, solder the two 2×20 headers at locations J2 and J4 on the Prototyping Board. Now align the Wi-Fi Adapter Board with headers J2 and J4 on the Prototyping Board as shown in Figure 1, and press the Wi-Fi Adapter Board firmly into the header pins. Again, take care to align the header pins on the Prototyping Board with the corresponding pins of the sockets on the Wi-Fi Adapter Board. Then insert the Linksys WCF12 Wireless CompactFlash Card into the Wi-Fi adapter board as shown.

2. Connect Programming Cable

The programming cable connects the RCM3100 to the PC running Dynamic C to download programs and to monitor the RCM3100 for debugging.

Connect the 10-pin connector of the programming cable labeled **PROG** to header J1 on the RCM3100 as shown in Figure 2. Be sure to orient the marked (usually red) edge of the cable towards pin 1 of the connector. (Do not use the **DIAG** connector, which is used for a normal serial connection.)

NOTE: Be sure to use the programming cable supplied with this Development Kit—the programming cable has color shrink wrap around the RS-232 converter section located in the middle of the cable. Programming cables with clear shrink wrap from other Z-World or Rabbit Semiconductor kits were not designed to work with RCM3100 series modules.

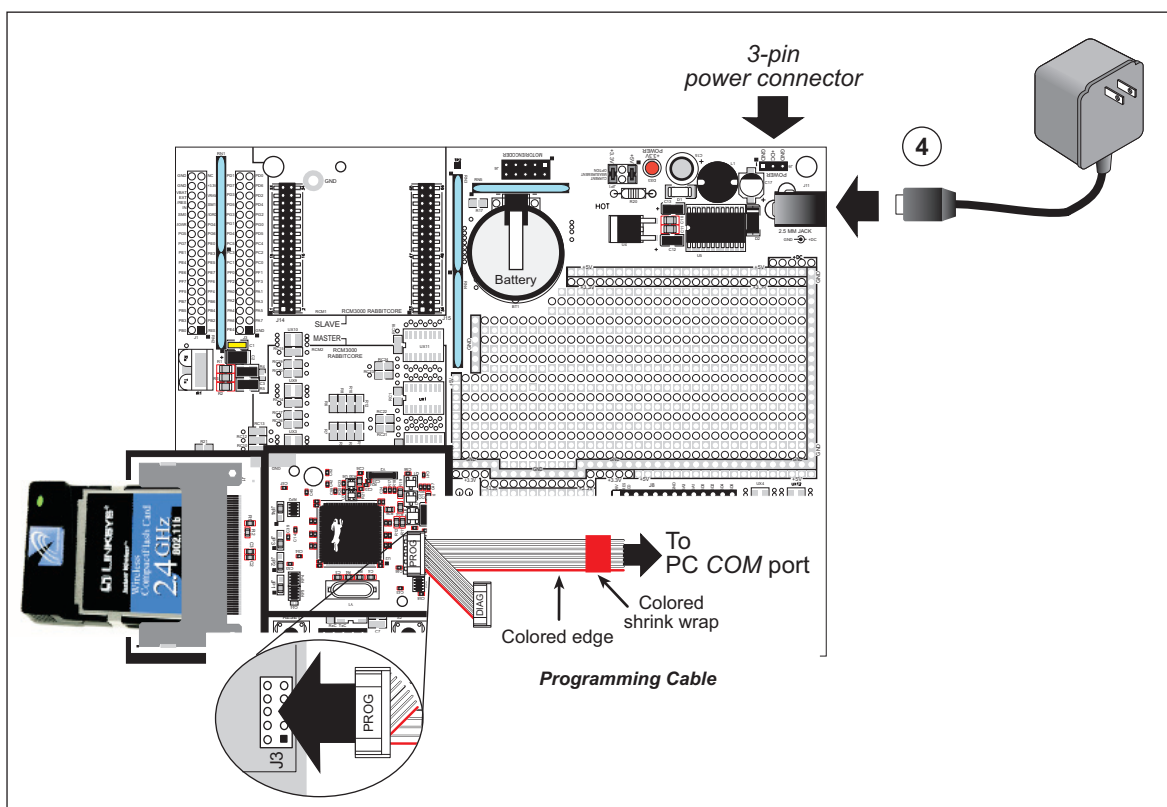


Figure 2. Connect Programming Cable and Power Supply

3. Connect Programming Cable

Finally, connect the wall transformer to jack J11 on the Prototyping Board as shown in Figure 2. The LED above the **RESET** button on the Prototyping Board should light up.

NOTE: The **RESET** button is provided on the Prototyping Board to allow a hardware reset without disconnecting power.

Overseas Development Kits

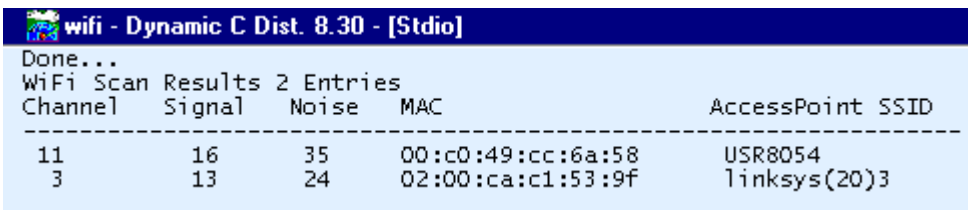
Development kits sold outside North America include a header connector that may be connected to 3-pin header J9 on the Prototyping Board. The connector may be attached either way as long as it is not offset to one side. The red and black wires from the connector can then be connected to the positive and negative connections on your power supply. The power supply should deliver 8 V–24 V DC at 1 A.

Running the Software

Once Dynamic C and the software from the supplementary CD-ROM have been installed, you are ready to continue. The instructions in the **WiFiReadMe.txt** file provide more detailed information about how to add the files and code from the supplementary CD-ROM to your Dynamic C installation.

Start Dynamic C by double-clicking on the Dynamic C icon or by double-clicking on **dcrabXXXX.exe** in the Dynamic C root directory, where **XXXX** are version-specific characters. Find the **SCAN.C** sample program in the Dynamic C **Samples\WiFi** folder, open it with the **File** menu, then compile and run the sample program by pressing **F9**.

The Dynamic C **STDIO** window will display **Scanning...Done**, and will display a list of access points/ad-hoc hosts as shown here.



The screenshot shows a window titled "wifi - Dynamic C Dist. 8.30 - [Stdio]". The text inside reads "Done..." followed by "WiFi Scan Results 2 Entries". Below this is a table with columns: Channel, Signal, Noise, MAC, AccessPoint, and SSID. The table contains two entries: one for channel 11 with signal 16, noise 35, MAC 00:c0:49:cc:6a:58, AccessPoint USR8054, and SSID linksys(20)3; and another for channel 3 with signal 13, noise 24, MAC 02:00:ca:c1:53:9f, AccessPoint linksys(20)3, and SSID linksys(20)3.

Channel	Signal	Noise	MAC	AccessPoint	SSID
11	16	35	00:c0:49:cc:6a:58	USR8054	linksys(20)3
3	13	24	02:00:ca:c1:53:9f	linksys(20)3	linksys(20)3

The LEDs on the Prototyping Board indicate the number of stations found.

LED DS1	LED DS2	No. of Stations Found
OFF	OFF	0
OFF	ON	1
ON	OFF	2
ON	ON	3 or more

The following fields are shown in the Dynamic C **STDIO** window.

- Channel—the channel the access point is on (1–11).
- Signal—the signal strength of the access point.
- Noise—the average noise of the channel.
- MAC—the hardware (MAC) address of access point.
- SSID—the SSID the access point is using.
- Rate—the maximum rate the access point supports.

Where Do I Go From Here?

AN404 on the CD-ROM, *Wi-Fi Sample Programs*, provides additional information. If there are any problems:

- Check the Z-World/Rabbit Semiconductor Technical Bulletin Board at www.zworld.com/support/bb/.
- Use the Technical Support e-mail form at www.zworld.com/support/support_submit.html.

NOTE: If you purchased your Serial-to-Ethernet Application Kit through a distributor or through a Z-World or Rabbit Semiconductor partner, contact the distributor or partner first for technical support.

Additional Hardware Information

The *RabbitCore RCM3100 Getting Started Manual* included with this kit provides more detailed hookup and Dynamic C debugging information. The *RabbitCore RCM3100 User's Manual* on the Dynamic C CD-ROM provides complete information on using and developing applications for the RCM3100, and includes further information on the Prototyping Board.