GPRS/GSM Application Kit

Application Kit Contents

- 3 CD-ROMs — ***Dynamic C***® and ***Dynamic C*** PPP module CDs, with complete product documentation on disk, and supplemental CD with sample programs and information related to GPRS/GSM Application Kit.
- RCM3100 RabbitCore module.
- Prototyping Board, with a bag of accessory parts for use on the Prototyping Board.
- LCD/keypad module.
- AC adapters: 12 V DC, 1 A for RCM3100 and Prototyping Board; 5 V DC, 2 A for Enfora Spider SA-GL GPRS/GSM modem.
- Programming cable with level-matching circuitry.
- GSM/GPRS modem: Enfora Spider SA-GL 850/900/1800/1900 MHz.
- ½-wave antenna for modem
- DB9 to 10-pin adapter cable.
- ***Getting Started*** instructions and application instructions.
- ***Rabbit 3000***® ***Processor Easy Reference*** poster.
- Registration card.

Hardware Connections

Set Up LCD/Keypad Module

If header J5 is installed, remove the jumper on header J5 on the back of the LCD/keypad module to configure the LCD/keypad module to operate at 5 V. If the LCD/keypad module has a potentiometer, the contrast may be adjusted once the LCD/keypad module is installed in Step 2.

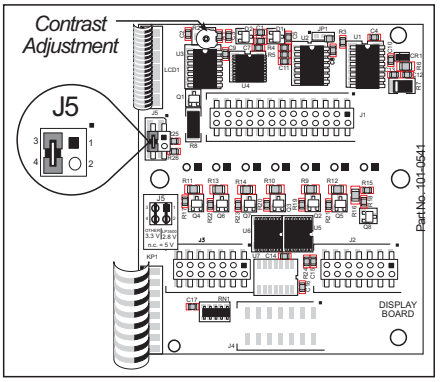

Figure 1. Remove Jumper from Header J5 on LCD/Keypad Module

Install Modules 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 2 below. Line up the pins on headers J1 and J2 on the bottom of the module with header sockets RCM2JA and RCM2JB on the Prototyping Board. Install the LCD/keypad module on header sockets J7, J8, and J10 of the Prototyping Board as shown in Figure 2. Press both modules' pins firmly into the Prototyping Board header sockets.

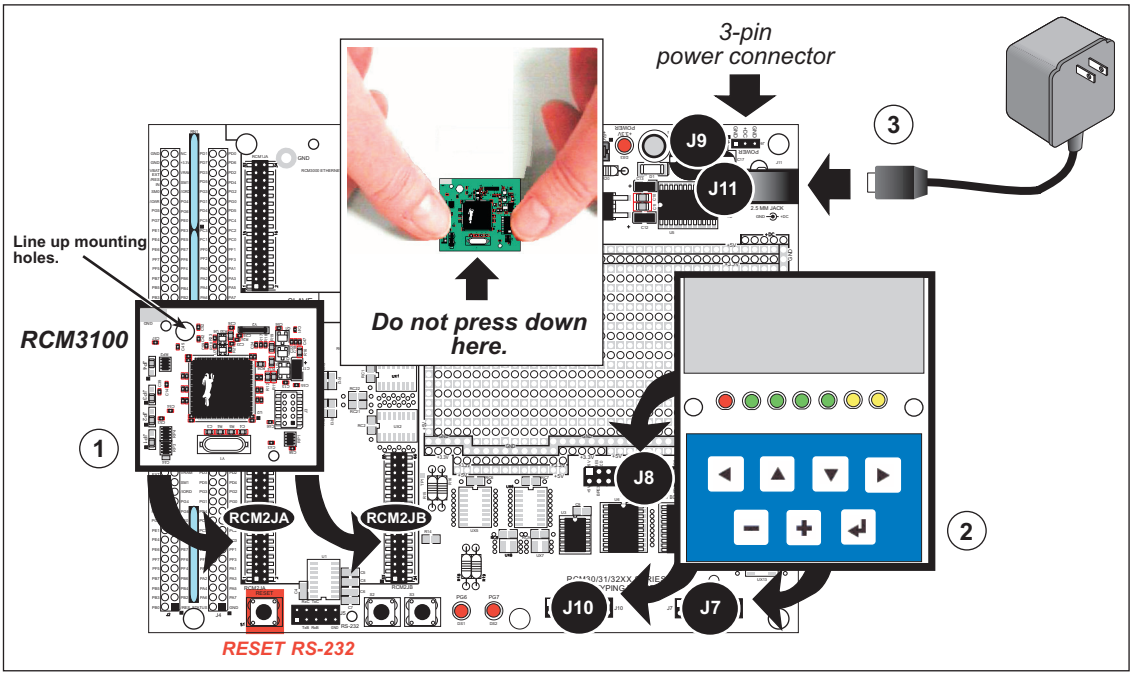

Figure 2. Install the Modules on the Prototyping Board

NOTE: It is important that you line up the pins on the modules exactly with the corresponding pins of the sockets on the Prototyping Board—press down in the area above the header pins using your thumbs or fingers over the connectors as shown in Figure 2. 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.

Connect the 12 V power adapter to jack J11 on the Prototyping Board as shown in Figure 2 above. The power LED to the left of the power-supply connection on the Prototyping Board should light up.

NOTE: The **RESET** button is provided on the Prototyping Board to allow a hardware reset of the RCM3100 module without disconnecting power.

Attach Cables

Connect the 10-pin connector of the programming cable labeled **PROG** to header J1 on the RCM3100 as shown in Figure 3. 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.)

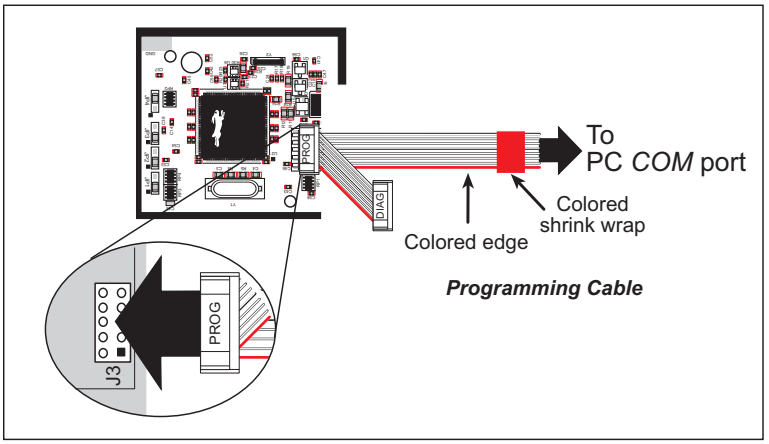

Figure 3. Connect Programming and Ethernet Cables to PC

NOTE: Be sure to use the programming cable supplied with this Application Kit—the programming cable has red shrink wrap around the RS-232 converter section located in the middle of the cable. Programming cables from other Rabbit Semiconductor kits are not designed to work with RCM3100 modules.

Set Up GPRS/GSM Modem

The modem requires a SIM card, and supports 3 V SIM cards. Before using your SIM card, contact your service provider to activate your card as detailed in the instructions included with your card. You may call AIRDESK at 1-800-470-2143 to get a SIM card, and make arrangements for wireless service and activation. You may have to wait 8–24 hours for the activation to come into effect. You may also be asked for the 15-digit IMEI number of the modem, which appears with the bar code label on the modem.

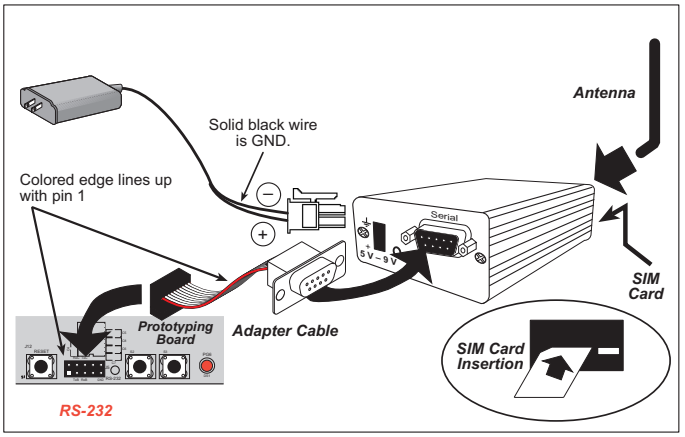

Figure 4. Hook Up GSM/GPRS Modem

There is a small thumb latch to the right of the SIM card slot to hold the SIM card in place. If necessary, move the latch to the right and slide the SIM card into its slot with the notched end as shown until it clicks into place. Slide the latch to the left to hold the SIM card in place.

Use the DB9 to 10-pin adapter cable to connect the modem to the RS-232 header on the Prototyping Board. Be sure to orient the marked (usually red) edge of the adapter cable towards pin 1 of the connector. Install the antenna and connect the 5 V, 2 A power adapter as shown in Figure 4.

TIP: If you need to reset the GPRS/GSM modem, disconnect, then reconnect its power supply. The GPRS/GSM modem has its own power supply.

Running the Software

1. Install the DC 8.61 software from the Dynamic C CD. Use the license key supplied on the card inside the CD sleeve.
2. Install the PPP module from the Dynamic C PPP module CD. Using the license key supplied on the card inside the CD sleeve.
3. Copy the contents from the supplemental CD to a directory on your hard disk. We recommend that you assign a readily identifiable directory name such as **GPRS_GSM_KIT**.
4. Copy the library components from the **C:\GPRS_GSM_KIT\GPRS\LIB** folder into the **LIB\GPRS** library directory of your Dynamic C installation (e.g., **C:\DCRABBIT_8.61\LIB**).
5. Open Dynamic C (for example, by double-clicking on the Dynamic C icon on your PC desktop), and open the library directory file **LIB.DIR**. Add the following lines, and save the file.

```
...
lib\gprs\gsm_gprs.lib
lib\gprs\kdu_menu.lib
lib\gprs\kdu_menu_sms.lib
lib\gprs\mdm.lib
lib\gprs\modemcntrl.lib
```

6. With the programming cable and modem adapter cable attached as described in the preceding pages, and power applied to both the Prototyping Board and the modem, open the sample program **GPRS_GSM_KIT\SAMPLES\GSM\BASIC_SMS.C**. Press **F9** to compile and download the sample program.

The program should print out some diagnostic information in the Dynamic C **STDIO** window. The phone number for the modem is included in this diagnostic information. Use the phone number to send an SMS message from a GSM phone to the modem. The sample application will read the message, display the contents on the screen, and then respond to the SMS message with a preprogrammed message.

Where Do I Go From Here?

Be sure to check the **readme_1st.txt** file on the supplemental CD and the GPRS/GSM FAQs on the GPRS/GSM product page from the Rabbit Semiconductor Web site for additional information. The ***Rabbit-Core RCM3100 User's Manual*** on the Dynamic C CD provides complete information on using and developing applications for the RCM3100, and includes further information on the Prototyping Board and the LCD/keypad module. The complete AT command set is available from Enfora's Web site.

The supplemental CD included with this Application Kit contains sample programs to illustrate:

- using a GSM device (e.g., cell phone) to initiate SMS commands/messages to the RCM3100
- using the RCM3100 to initiate an SMS message to a cell phone via the LCD/keypad module
- using the RCM3100 to establish a PPP connection via GPRS network (opens socket for a GPRS session)
- using the RCM3100 to log on to FTP/SMTP/POP3 servers
- a data-entry menu system for the LCD/keypad module

NOTE: The software for this application kit does not currently support the Dynamic C µCOS-II module.

If there are any problems:

- Use the Dynamic C **Help** menu to get further assistance with Dynamic C.
- Check the Rabbit Semiconductor Technical Bulletin Board at www.rabbit.com/support/bb/.
- Use the Technical Support e-mail form at www.rabbit.com/support/questionSubmit.shtml.

NOTE: If you purchased your GPRS/GSM Application Kit through a distributor or through a Rabbit Semiconductor partner, contact the distributor or partner first for technical support.