

Quick-Start Guide v1.1

Renesas Demonstration Kit for RL78G13



▶ **Do not connect the USB port on the RDK until the installation software has been installed!**

- This board comes pre-installed with an interactive demo program. During this quick installation, we will load IAR Compiler based demo projects. Should you want to return the board to the factory's default firmware demo, simply load the "Factory Demo" into the board using IAR System's "Embedded Workshop KickStart", and locate and upload the project present on the companion DVD called RL78Therein. This project is also available online (URL link provided in Step #2).
- For basic operation, the RDKRL78G13 only needs USB power. The Aux Power Jack J4 (+5v Regulated input) is only necessary in a high current operation.
- The single install contains the following components:
 - a. IAR Embedded Workbench for RL78 (version 1.10.5 or above)
 - b. Renesas AutoUpdater
 - c. Debug drivers, example and demo software for the RL78G13 RDK
 - d. Applilet3 for RL78
 - e. Documentation: Schematics, Gerbers, RL78 Hardware Manual, RL78 Software Manual, YRDKRL78G13 User's Manual, this YRDKRL78G13 Quick-Start Guide and other development tools release notes.



Software Installation and Evaluation (Step#1 - #24)

1. First Installation should be based on the companion DVD; subsequent updates should be checked online. The installation from the DVD could take up to 1/2 hour and requires an internet connection to register the IAR tools. Insert the DVD in your player which should automatically launch the installation process (provided Autorun is enabled on your machine). Alternately, you can also launch autorun.exe manually.
2. Alternate installation can be done by browsing at: www.renesas.com/rdkRL78G13install. Skip Step#3 if you are installing from the companion DVD.
3. Click on "Download installation CD for the RL78G13 RDK", and download the file to your hard drive. Execute the file to extract the CD files to your computer. Locate the file "autorun.exe" in the CD files. Double click on this file to start installation. Follow the on screen directions to install the required software. We recommend you install ALL the software! You may also need to register the IAR product.

Connection

4. On the RDK, ensure the switch, SW5, is set to "DEBUG" (ON, OFF, ON, ON) as shown here.
5. Connect one end of the included USB cable to your computer and the other end to the Mini USB connector, J16, to the left of the serial D-SUB. This is the debug interface and from where we power the board.

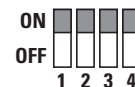


6. The 'Found New Hardware' Wizard may appear. Please follow the steps below to install the drivers. Note that administrator privileges are required for a Windows® 2000/XP/Vista/Win7 machines.

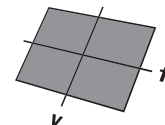
RDK Validation

Before we program the board, let's verify the board is working when you received it.

7. On the RDK, set the switch, SW5, so it's set to "RUN" (ON, ON, ON, ON) as shown here.
8. Press the "RESET" button located above the Analog Devices logo.



- A crosshair should appear on the display similar to the picture on the right.
- As you tilt the board, the dot should move around the display.
- Pressing SWITCH 3 next to the "mute" text on the display will cause the speaker to emit a tone. Tilting the board on the 'f' axis will cause the tone's pitch to change, while tilting the board on the 'V' axis will cause the volume to change.
- Sequentially pressing SWITCH 3 will mute and unmute the tone.



9. When you are done, set the switch, SW5, back to "DEBUG" (ON, OFF, ON, ON).

Windows™ 2000/XP

- a. Select option "No, not this time" in "Found New Hardware" Wizard dialog, and click <Next> button.
- b. Verify the "Recommended" option is selected and click <Next>.
- c. If using Windows XP, go to step "e"; otherwise, click <Next>.
- d. Click <Next> to install the driver.
- e. Click <Finish> to close the wizard.

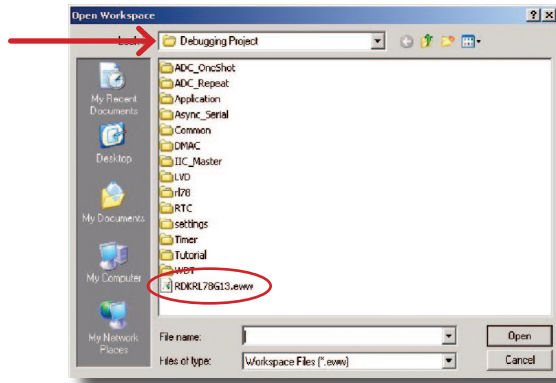
Windows Vista / Windows 7 (32 or 64)

- a. Select "Locate and install driver software (recommended)."
- b. "User Account Control" dialog box will appear. If applicable, enter administrator password and click <OK>.
- c. Driver installation will start. After a couple of minutes, a "Windows security" dialog box will appear, select "install this driver software anyway."
- d. "Device driver software installed successfully" pop-up will appear in the windows toolbar and installation will be completed.

IAR's Embedded Workbench for RL78 and Demonstration Programs

The RL78G13 RDK is supported by IAR System's Embedded Workbench Kickstart. This demo version of the IAR tools is full featured, but limited to a 16KB compiled output. Embedded Workbench integrates various tools such as the compiler, assembler, debugger and editor into a common graphical user interface.

10. Launch "IAR Embedded Workbench for Renesas RL78 1.10 Kickstart" from the Start Menu (All Programs > IAR Systems > IAR Embedded Workbench for Renesas RL78 1.10 Kickstart).
11. In the "IAR Information Center for Renesas RL78" window, click on the "EXAMPLE PROJECTS" icon.
12. In the "Example projects" window, click on the "Renesas Electronics" icon.
13. In the "Renesas Electronics Examples" window, click on the "RL78G13 Demonstration Kit Samples" icon.
14. In the "RL78 Demonstration Kit Samples" window, click on the "RDKRL78G13 RL78/G13 Demonstration Kit Samples" icon.
15. Click on "Open project" for the "Sample Codes" workspace project. Then select the current destination folder to where the Workspace will be copied. The IDE should come up with the list of demo projects.
16. Alternately, you can navigate to the example project (RDKRL78G13.eww) that is placed along that tree:
\\RL78\examples\Renesas\Development Kit Samples\RDKRL78G13\Debugging Project



NOTE: While we were drilling down in the pages above, we could have selected other third-party vendors such as SEGGER or Micrium versus Renesas, and under the "RDKRL78G13 RL78/G13 Demonstration Kit Samples" page, we could have selected any of the other available demos.


Select and Build a Project

17. The Workspace window is open and lists a dozen projects featuring demos with the ADC, the serial port, the DMA engine, the IIC port, the LVD, the RTC and various timers. Click one of these modules, right-click and select "Set as active." This will activate the current project.

18. Under the "Workspace" dialog, right click on the selected project and click on "Rebuild All." This can also be done from the top menu bar by selecting "Project", then "Rebuild All."





NOTE: The "ADC_OneShot" project is selected by default; you could have selected any of the number of example projects that show how to use this device.

Connect to the Renesas Demonstration Kit

19. Make sure your board is connected with the dip switches set for "DEBUG" as indicated in steps 3 and 4 above.
20. Click the "Download and Debug" icon  on the icon bar or by selecting "Project", then "Download and Debug" from the top menu bar. Embedded Workbench will download the code to the RL78 RDK and switch to debug mode.

NOTE: The "Downloading" window will show the progress of the download; once completed it will disappear. This may be VERY fast.

Running the Demo!

21. Click the "Reset" icon  on the debug icon bar or by selecting "Debug", then "Reset" from the top menu bar.
22. Click the "Go" icon  on the debug icon bar or by selecting "Debug", then "Go" from the top menu bar.
 - Initially, the LCD Display will show a welcome screen with some directions for each demo.
 - Press a given combination of SW1/SW2/SW3 and the rotary potentiometer to go thru the demo based on the displayed instructions.
 - You may find additional information in the project Text Files.
23. Click the "Stop" icon  to stop code execution. Embedded Workbench will display the source code at the current program counter.
24. Press the "Stop Debugging" icon  when you are finished with the debugger. This will return you to the editor windows.

Compilers

The demonstration code is built using IAR Systems' Embedded Workbench. This compiler is fully functional, but limited to 16KB. Fully licensed RL78 compiler versions are available from your IAR supplier.

Support

- Support Forums for this RDK:
www.RenesasRulz.com/rdkRL78G13
- Online training for RL78 and other products and tools is available at: www.RenesasInteractive.com
- Website for this RDK: www.renesas.com/rdkRL78G13install
- Technical Support Email Addresses:
America: techsupport.america@renesas.com
Europe: tools.support.eu@renesas.com
Japan: csc@renesas.com



Renesas Electronics America Inc. | www.renesas.com
2880 Scott Boulevard, Santa Clara, CA 95050-2554 | Phone: 1 (408) 588-6000

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