



## RS232 SERIAL ADAPTER (EC2) USER'S GUIDE

### 1. Contents

The RS232 Serial Adapter (EC2) package contains the following items:

- RS232 Serial Adapter (RS232 to Debug Interface)
- 7" Ribbon Cable

### 2. RS232 Serial Adapter (EC2)

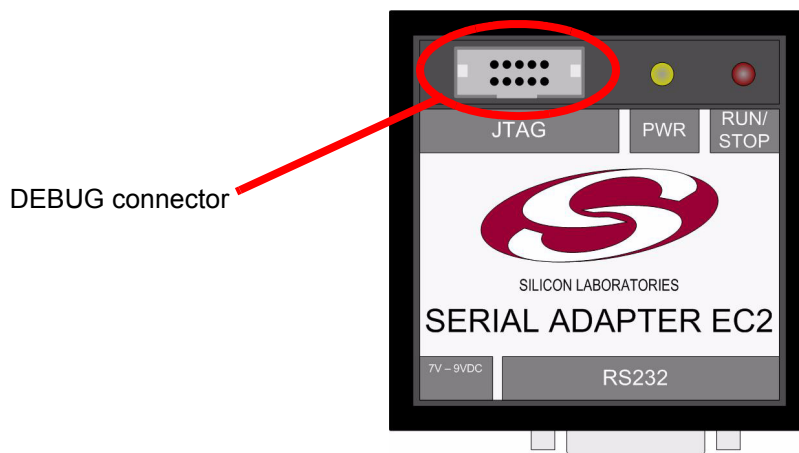
The RS232 Serial Adapter provides the interface between the PC's RS232 serial port and the target device's in-system debug/programming circuitry. The included 10-pin DEBUG ribbon cable connects the adapter to the target board and the target device's debug interface. The Serial Adapter supports both Silicon Laboratories JTAG and C2 debug interfaces. RS232 Serial Adapters can be powered from the target board, but they cannot provide power to the target board. Table 1 shows the pin definitions for the DEBUG ribbon cable connector.

**Notes:**

- When powering the RS232 Serial Adapter via the DEBUG connector, the input voltage to the DEBUG connector's power pin must be 3.0 to 3.6 VDC. Otherwise, the Serial Adapter must be powered directly by connecting the ac/dc adapter to the Serial Adapter's dc power jack.
- The RS232 Serial Adapter requires a target system clock of 32 kHz or greater.

**Table 1. RS232 Serial Adapter DEBUG Connector Pin Descriptions**

Pin #	Description
1	3.0 to 3.6 VDC Input
2, 3, 9	GND (Ground)
4	TCK (C2D)
5	TMS
6	TDO
7	TDI (C2CK)
8,10	Not Connected



**Figure 1. RS232 Serial Adapter Connectors**

# RS232 Adapter

## 3. Hardware Setup using a RS232 Serial Adapter

Connect a target board to a PC running the Silicon Laboratories IDE via the RS232 Serial Adapter (EC2) as shown in Figure 2.

1. Connect one end of a RS232 serial cable to a Serial (COM) Port on the PC.
2. Connect the other end of the RS232 serial cable to the DB-9 connector on the RS232 Serial Adapter.
3. Connect one end of the 10-pin ribbon cable to the RS232 Serial Adapter's DEBUG header.
4. Connect the other end of the ribbon cable to the target board at the DEBUG or JTAG connector.
5. Connect a ac/dc power adapter to the power jack on the target board.

### Notes:

- Use the **Reset** button in the IDE to reset the target when connected using an RS232 Serial Adapter.
- Remove power from the target board and the RS232 Serial Adapter before connecting or disconnecting the ribbon cable from the target board. Connecting or disconnecting the cable when the devices have power can damage the device and/or the RS232 Serial Adapter.
- A RS232 Serial Cable is necessary when using the RS232 Serial Adapter. Serial cables are not included with the purchase of the RS232 Serial Adapter.

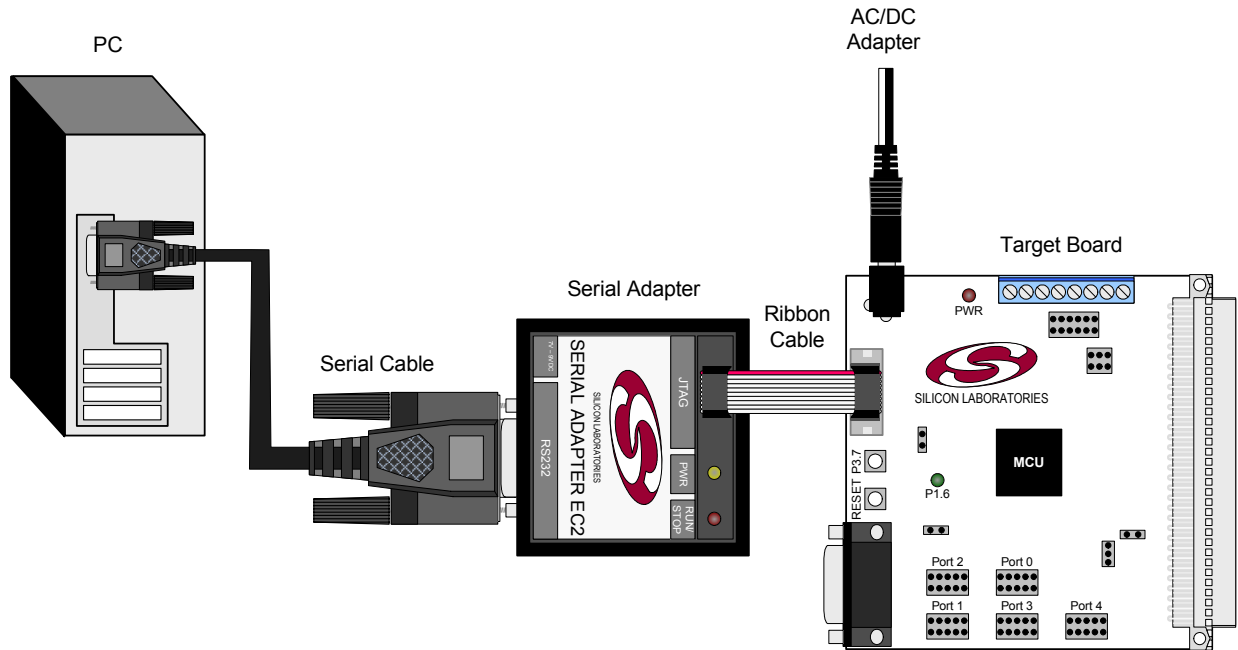


Figure 2. Hardware Setup using an RS232 Serial Adapter (EC2)

## 4. Software Setup using a RS232 Serial Adapter

The Silicon Laboratories Integrated Development Environment (IDE) along with other software tools are provided for device development and debugging. The IDE is available for download from the Silicon Laboratories website and is also available on microcontroller development kit CD-ROMs. Once the IDE has been installed and the hardware has been connected as shown in Section 3, follow the steps below to build a project, connect and download to a target board using the Serial Adapter.

1. Select **Project**→**Open Project...** to open a previously saved project.
2. Before connecting to the target device, several connection options may need to be set. Open the **Connection Options** window (shown in Figure 3) by selecting **Options**→**Connection Options...** in the IDE menu.
3. Select RS232 Serial Adapter (EC2) in the “Serial Adapter” section.
4. Choose the correct COM Port from the drop-down list and select the desired Baud Rate.
5. Next, the correct “Debug Interface” must be selected. Check the Debug Interface corresponding to the Silicon Laboratories device on the target board.
6. Once all the selections are made, click the OK button to close the window.
7. Click the **Connect** button in the toolbar or select **Debug**→**Connect** from the menu to connect to the device.
8. Download the project to the target by clicking the **Download Code** button in the toolbar.
9. Save the project when finished with the debug session to preserve the current target build configuration, editor settings and the location of all open debug views. To save the project, select **Project**→**Save Project As...** from the menu. Create a new name for the project and click on **Save**.

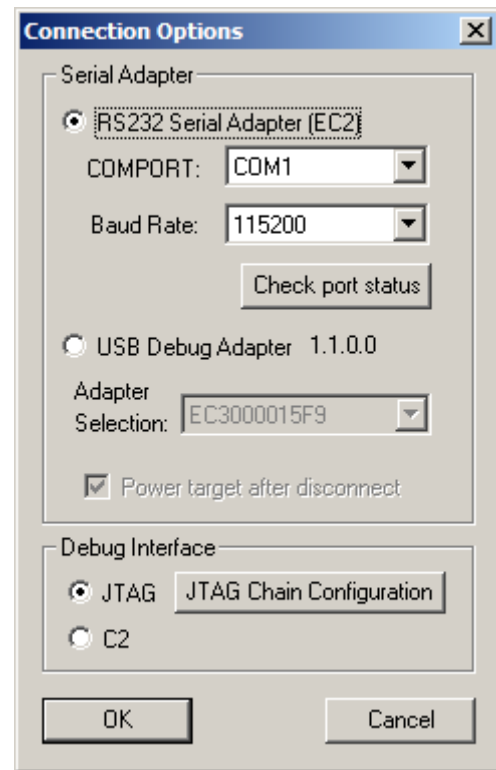
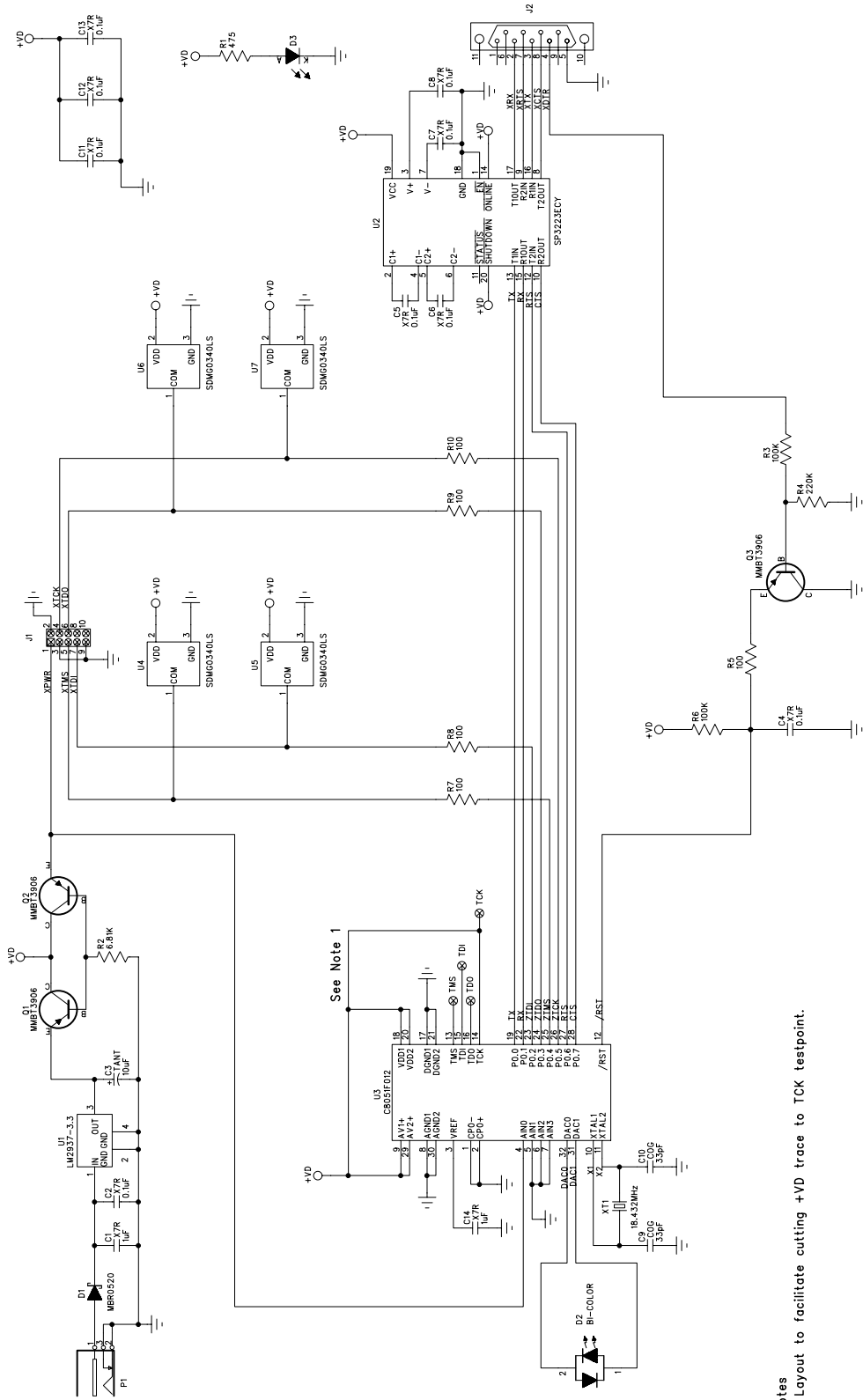


Figure 3. Connection Options

# RS232 Adapter

## 5. Schematic



Notes  
 1. Layout to facilitate cutting +VDD trace to TCK testpoint.

Figure 4. RS232 Serial Adapter (EC2) Schematic

**NOTES:**

# RS232 Adapter

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