

eb501-SER Wireless Serial Adapter

Quick Start Guide

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Introduction

Congratulations on your purchase of the eb501-SER Wireless Serial Adapter.

A7's eb501-SER Wireless Serial Adapter is an easy to use reference design for the eb100-SER Wireless Serial Port Module and at the same time provides the functionality of an equally easy to use adapter for enabling serial cable replacement. To fully appreciate the features of this adapter please take a few minutes and read through this Quick Start Guide.

The eb501-SER is based on ebSerial firmware. The ebSerial firmware reference manual may be used to get in depth documentation on the firmware running on this adapter; including the complete command reference.

A7 makes all documentation, including complete design files, available on the A7 website.

DB9 RS232 Interface



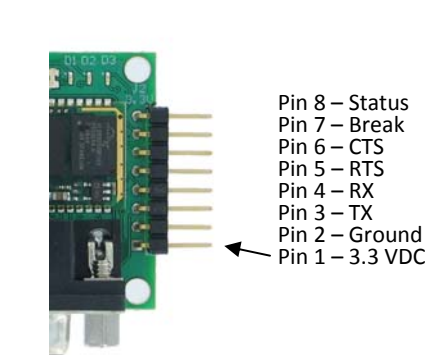
- Pin 1 – CD*
- Pin 2 – TX
- Pin 3 – RX
- Pin 4 – NC
- Pin 5 – Ground
- Pin 6 – NC
- Pin 7 – CTS
- Pin 8 – RTS
- Pin 9 – NC

*reflects Bluetooth connection status

Features

1. 8 Pin 5V Digital Interface
 2. 4 Mounting Holes
 3. DC Power Input
 4. SMA Antenna Connector
 5. Reset/EasyConnect Switch
 6. Indicator LED
 7. eb100-SER Core
 8. 8 Pin 3.3V Digital Interface
 9. DB9 RS232 Interface
-

0.1" 8 Pin 3.3V Interface



- Pin 8 – Status
- Pin 7 – Break
- Pin 6 – CTS
- Pin 5 – RTS
- Pin 4 – RX
- Pin 3 – TX
- Pin 2 – Ground
- Pin 1 – 3.3 VDC

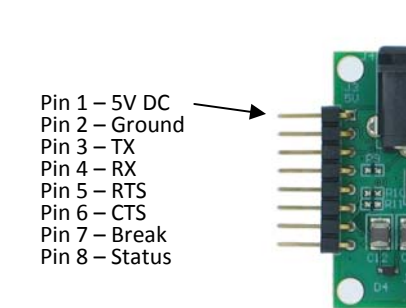
Indicator LED Pattern

LED D3 provides status for the eb501-SER.

Pattern	Description
blink once at power on	Command mode; module can be controlled over the UART using the command set.
blink twice at power on	EasyConnect mode; module will automatically establish a connection with the remote device that it is paired with.
solid on	EasyConnect mode setup is searching for another EasyConnect device to pair with. When pairing is complete and the devices are connected, the LED will turn off and begin to blink slowly.
slow blink	Active Bluetooth connection.
off	If the module is in command mode then it is idle when the LED is off. If the module is in EasyConnect mode then it is attempting to connect with its paired device.

Note: LEDs D1 and D2 are not used with ebSerial firmware.

0.1" 8 Pin 5V Interface

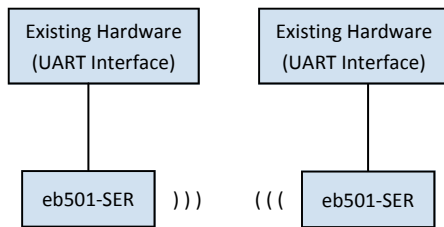


- Pin 1 – 5V DC
- Pin 2 – Ground
- Pin 3 – TX
- Pin 4 – RX
- Pin 5 – RTS
- Pin 6 – CTS
- Pin 7 – Break
- Pin 8 – Status

EasyConnect Mode

EasyConnect mode provides a simple cable replacement solution between either two ebSerial devices or one ebSerial device and another Bluetooth device such as a cell phone or PC. Once set up, data is transmitted between the devices automatically without the need for additional configuration or control. The wireless cable connection will be established and maintained whenever the eb501-SER is powered.

This usage is most common when you want to enable a device with wireless technology, but do not want to make any modifications to it other than connecting it to an eb501-SER device. The figure illustrates a cable replacement link between two eb501-SER adapters.



EasyConnect: Connecting to a standard Bluetooth device

In this scenario a single eb501 will be used in the same manner as one side of the previous scenario. This scenario typically requires the following one time setup procedure. This procedure assumes that the eb501 is in the factory default state.

1. Connect the eb501 to your PC serial port using a straight through cable or connect directly without a cable if space permits.
2. Launch a terminal program such as HyperTerminal configured for 9600 baud, no parity, 8 bits, 1 stop bit. The terminal program must be configured to interface to the physical port that the eb501 is connected to.
3. Connect power to the eb501.
4. Notice the prompt character ">" received by the terminal program on your PC.
5. Configure the flow control as desired using the "SET FLOW" command via HyperTerminal.
6. Configure the baud rate as desired using the "SET BAUD" command via HyperTerminal. (Note that once the "SET BAUD" is used to change the baud rate your terminal program will have to be re-configured to the new baud

EasyConnect: Cable replacement with eb501-SER adapters

In order to use the devices in this scenario the device must go through the following one time setup procedure. This procedure assumes that the eb501s are in the factory default state as discussed above.

1. Connect the eb501 to your PC serial port using a straight through cable or connect directly without a cable if space permits.
2. Launch a terminal program such as HyperTerminal configured for 9600 baud, no parity, 8 bits, 1 stop bit. The terminal program must be configured to interface to the physical port that the eb501 is connected to.
3. Connect power to the eb501.
4. Notice the prompt character ">" received by the terminal program on your PC.
5. Configure the flow control as desired using the "SET FLOW" command via HyperTerminal.
6. Configure the baud rate as desired using the "SET BAUD" command via HyperTerminal. (Note that once the "SET BAUD" is used to change the baud rate your terminal program will have to be re-configured to the new baud

rate as well if any further commands are to be issued.)

7. Remove power from the adapter.
8. Depress switch SW1 while reapplying power. Once the LED D3 turns on the switch should be released. (LED D3 should remain on)
9. The eb501 is now waiting for another Bluetooth device to pair with it and at the same time is searching for a device named 'ebAutoConnect' to initiate a pairing with.
10. Using the procedures outlined for your other Bluetooth device, make the device discoverable, connectable, and name your device "ebAutoConnect".
11. Wait a few moments while the connection is established. (This may take up to 30 seconds during this one time setup phase.)
12. Notice that the D3 LED on the eb501 begins to flash at approximately two second intervals.
13. The adapter is now paired with your other Bluetooth device and may be used through any of the three serial interfaces.

rate as well if any further commands are to be issued.)

7. Remove power from the adapter.
8. Remove the adapter from the PC serial port.
9. Depress switch SW1 while reapplying power to the adapter. Once the LED D3 turns on the switch should be released. (LED D3 should remain on, indicating that the device is in EasyConnect setup.)
10. Repeat the above steps 1 – 9 for the second eb501 adapter to be paired.
11. Wait a few moments while the adapters complete their pairing.
12. Notice that the D3 LEDs on both adapters begin to flash at approximately two second intervals.
13. The adapters are now paired and may be used through any of the three serial interfaces. The connection will automatically be attempted each time the two devices are powered up until the devices are factory reset.

Command Mode

For documentation on Command Mode refer to the command Mode Quick Reference Guide and/or the ebSerial Firmware Reference Guide.

Firmware Upgrade

Periodically A7 releases new versions of the ebSerial firmware to provide enhancements to the eb100 based products. These new versions and the instructions for upgrading the adapters are available on the A7 web site.

To check the version of the firmware that you are currently running you may follow the following steps.

1. Connect the eb501 to a serial port on your PC using a straight-thru serial adapter cable. (The eb501 may also be directly connected to a PC serial port without an adapter cable if space permits.)
2. Apply power to the eb501. (If the eb501 is set to EasyConnect Mode you will need to perform a factory reset.)
3. Type `ver all` at the ">" prompt and press the return key.
4. The version of ebSerial firmware will be displayed.

Factory Default Settings

Baud = 9600
Flow = None
Security = On
PIN = 0000

Factory Reset

To reset the eb501-SER to the factory default settings the following procedure may be used.

1. Depress the micro-switch SW1 on the eb501 while applying power. (Continue to depress the switch through the next 2 steps.)
2. Continue to depress the switch and notice that the LED indicator D3 turns on within one second.
3. Continue to depress the switch and notice that the LED indicator D3 turns off.
4. Release the switch.
5. Remove power.
6. The eb501 is now in the factory reset state. In the factory reset state the eb501 will boot to Command Mode.

For Additional Information

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Schematics

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