

HOW TO INSTALL THE BT900-US

Application Note

v1.1

INTRODUCTION

This guide demonstrates how to install a Laird BT900-US dongle onto a Windows, Linux or Mac computer and communicate with it.

REQUIREMENTS

- PC running Windows XP or later, or PC running GNU/Linux with kernel version 2.6.32.16 or later, or a Mac running OS X
- UwTerminal 7.0 or later (if running Windows) available from the Laird Embedded Wireless Support Center in the [BT900-US Software section](#);
CuteCom (If running GNU/Linux) available in most distributions repositories or <http://cutecom.sourceforge.net/>;
CoolTerm (If running Mac) available from <http://freeware.the-meiers.org/>
- BT900-US
- FTDI Drivers <http://www.ftdichip.com/Drivers/VCP.htm> (if not included on OS)

WINDOWS

To use a BT900-US on a Windows OS, follow these steps:

1. Connect the BT900-US to a spare USB port on your laptop or computer, or to a USB hub that can provide at least 100 mA of power.



Figure 1: BT900-US

Note: If there is enough power for the device, a blue light remains illuminated.

2. Follow the on-screen prompts. Depending on your version of Windows, you may need to install the FTDI drivers.

When complete, the BT900-US appears in the Windows device manager as a USB Serial Port. Make a note of the COM port number to use in step 4.

3. Extract UwTerminal to a selected folder and run the program (no installation is required).
4. Configure the applicable COM port (seen in the device manager) with the following settings:

- Baudrate – 115200
- Parity – None
- Stop Bits – 1
- Data Bits – 8
- Handshaking – CTS/RTS

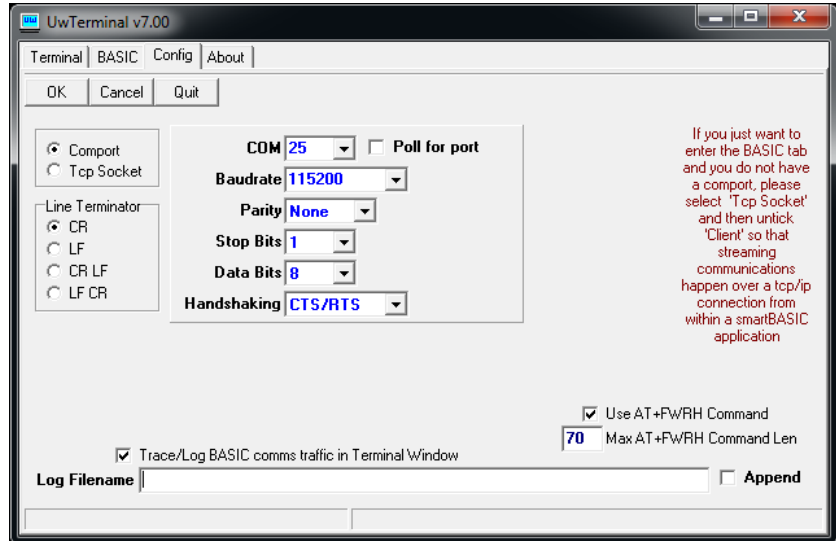


Figure 2: Comms settings

5. Confirm you can communicate with the development board by typing `at` followed by a carriage return. The module responds with `00`.



Figure 3: Comms OK

6. Applications can now be compiled and downloaded to the BT900-US.

GNU/LINUX

To use a BT900-US on GNU/Linux, follow these steps:

1. Connect the BT900-US to a spare USB port on your laptop or computer, or to a USB hub that can provide at least 100 mA of power.



Figure 4: BT900-US

2. Open a terminal emulator and use the command *dmesg* / *tail*. It displays a USB insertion event similar to Figure 5; make a note of this port for the next step. If there is no mention similar to *FTDI USB Serial Device converter now attached to ttyUSB0* then you may need to install the FTDI drivers which are available on their website.

```
laird : bash - Konsole
File Edit View Bookmarks Settings Help
[ 101.506841] usb 5-2: new full-speed USB device number 2 using uhci_hcd
[ 101.775795] usbcore: registered new interface driver usbserial
[ 101.775829] usbcore: registered new interface driver usbserial_generic
[ 101.775854] usbserial: USB Serial support registered for generic
[ 101.781312] usbcore: registered new interface driver ftdi_sio
[ 101.781345] usbserial: USB Serial support registered for FTDI USB Serial Device
[ 101.781486] ftdi_sio 5-2:1.0: FTDI USB Serial Device converter detected
[ 101.781552] usb 5-2: Detected FT232RL
[ 101.784265] usb 5-2: FTDI USB Serial Device converter now attached to ttyUSB0
[laird@Laird-SPP-Linux ~]$
```

Figure 5: GNU/Linux dmesg

To give device access to a regular system user, you must run a command as a super-user; you must have access to the super-user account to perform this step.

3. Refer to the applicable column in Table 1 depending on which commands you have on your system. Only one command needs to be used. Figure 6 shows an example of both commands.

Table 1: Super-user commands

Sudo	Su
<code>sudo chmod 777 <device></code> Provides all users with full access to the USB device.	<code>su -c chmod 777 <device></code> Provides all users with full access to the USB device.
<code>sudo chown <user>:<group> <device></code> Provides a specific user/group full access to the USB device.	<code>su -c chown <user>:<group> <device></code> Provides a specific user/group full access to the USB device.

```
laird : bash - Konsole
File Edit View Bookmarks Settings Help
[laird@Laird-SPP-Linux ~]$ su
Password:
[root@Laird-SPP-Linux laird]# chown laird:laird /dev/ttyUSB0
[root@Laird-SPP-Linux laird]#
[root@Laird-SPP-Linux laird]#
[root@Laird-SPP-Linux laird]# chmod 777 /dev/ttyUSB0
[root@Laird-SPP-Linux laird]# exit
exit
[laird@Laird-SPP-Linux ~]$
```

Figure 6: GNU/Linux chown/chmod

4. Open CuteCom.
5. In the Device text box, enter the device from step 2.
6. Make the following changes to the settings:
 - Baud rate – 115200
 - Data bits – 8
 - Stop bits – 1
 - Parity – None
 - Handshake – Hardware
 - Open for – Reading and Writing
7. Click **Open Device**.

If successful, you should now be able to communicate with the module. Ensure line endings are set to *CR line end* as shown in [Figure 7](#).

Note: Escape sequences such as tabs display as their hexadecimal representation rather than as tabs in the received data box.

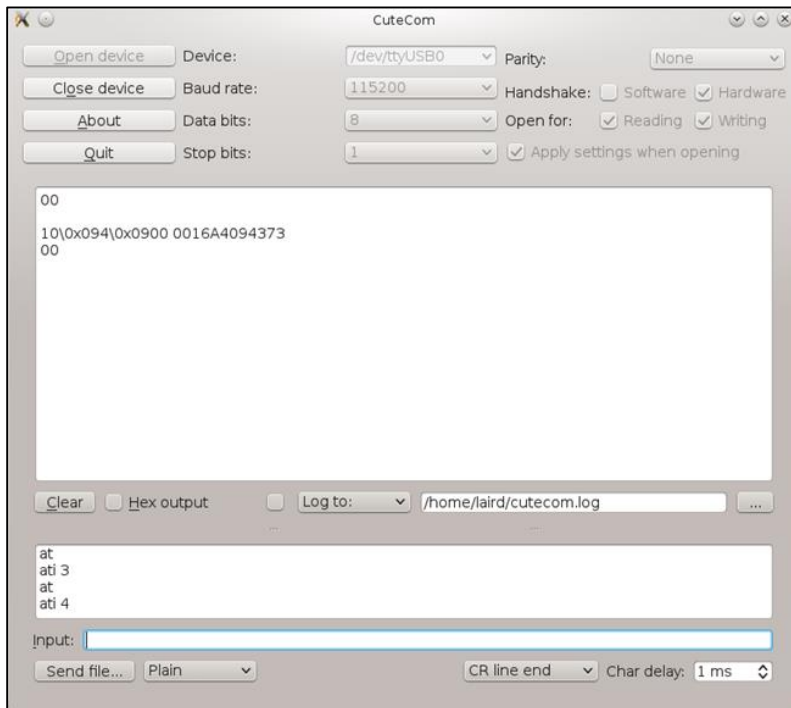


Figure 7: GNU/Linux CuteCom

MAC OS X

To use a BT900-US on Mac OS X, follow these steps:

1. Connect the BT900-US to a spare USB port on your Macbook/Mac or to a USB hub that can provide at least 100 mA of power.
2. Click the Apple icon on the menu.
3. Click **About This Mac**.

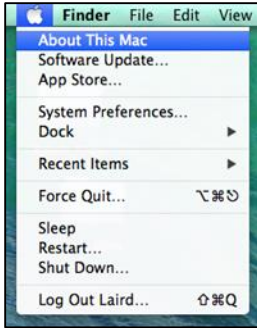


Figure 8: Click About This Mac

4. In the About This Mac window, click **More Info...**



Figure 9: About This Mac window

5. In the second About This Mac window, click **System Report...**

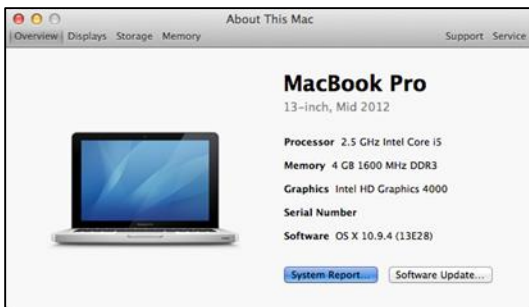


Figure 10: System Report button

- In the window that displays hardware information, click **USB** (Figure 11).

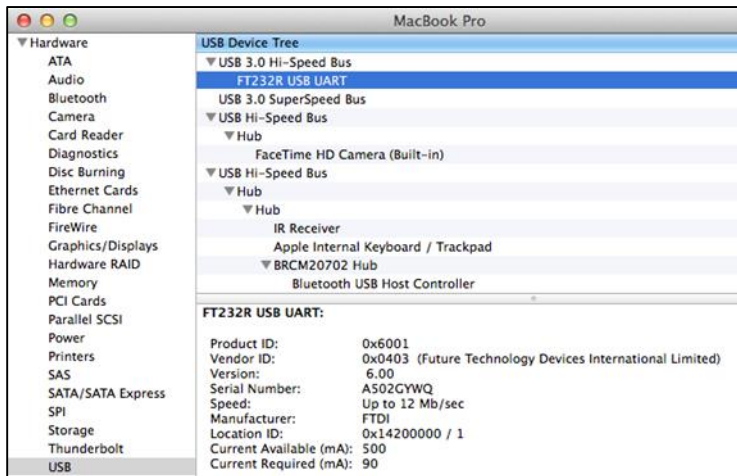


Figure 11: Hardware information

- In the USB Device Tree section, select the FT232R USB UART device.

Note: There may be multiples of this type of device if you have additional Laird products or other devices that contain FTDI UART chips.

- Once the correct device is selected, the bottom pane displays a serial number. Keep this visible.
- Open CoolTerm.
- In the CoolTerm's main window, click **Options**.
- Select **Serial Port** on the left side of the window (Figure 12).
- In the Serial Port Options section, ensure that the following settings display:

- Port – Select the corresponding device from the System Report window. It should be similar to the following: `usbserial-<serial number>`.
- Baudrate – 115200
- Data Bits – 8
- Parity – None
- Stop Bits – 1
- Flow Control – CTS

Note: If the applicable device is not present in this list, you may need to install the FTDI drivers which are available on their website.

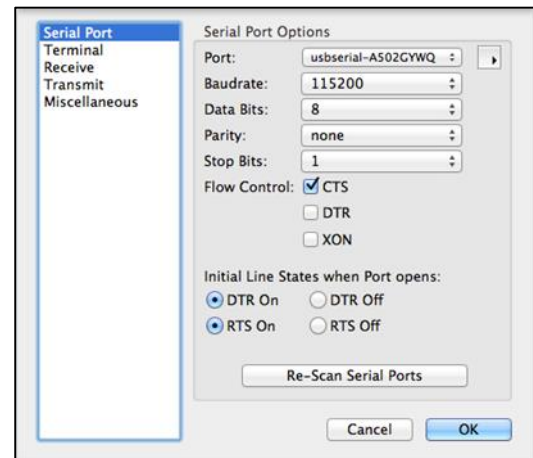


Figure 12: Serial Port Options

13. Select Terminal on the left side of the window (Figure 13).
14. Change the Enter Key Emulation to **CR**.
15. Select the Local Echo checkbox.

Note: Terminal mode can be changed to line mode. If in Line mode, commands are only sent when **Enter** is pressed. In Raw mode, characters are sent as they are typed. Note that backspace does not work in Raw mode.

16. Click **OK** to accept the changes.

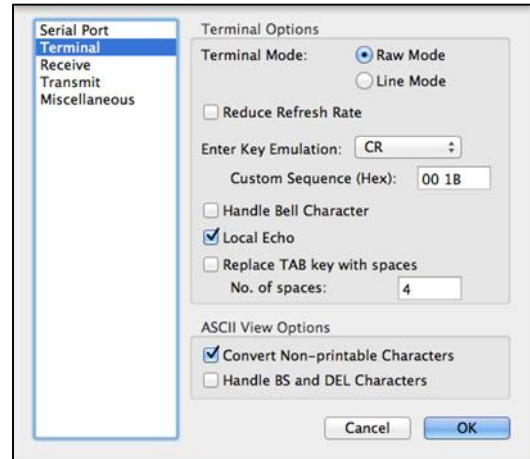


Figure 13: Terminal Options

17. Click **Connect**. If the connection is successful, the status lights for RTS/CTS/DTR are lit (Figure 14).

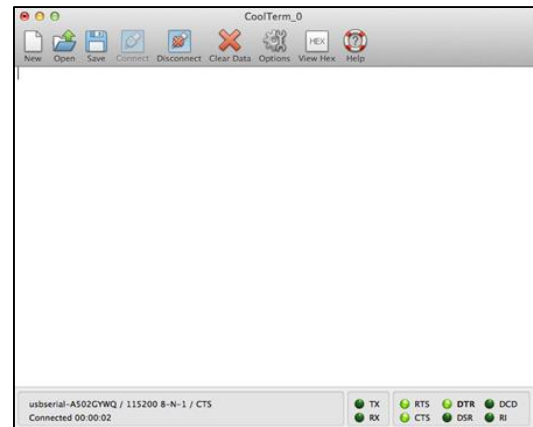


Figure 14: CoolTerm connected

18. Functions can now be entered (such as **at** or **ati 4**) and you can run *smart*BASIC applications if they are downloaded to the module (Figure 15).

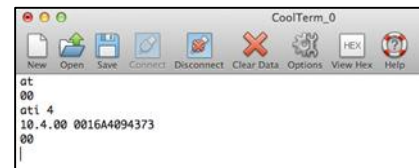


Figure 15: CoolTerm with BT900

REVISION HISTORY

Revision	Date	Description	Approved By
1.0	05 Feb 2015	Initial Release	Jonathan Kaye
1.1	03 Mar 2015	Added Revision History	Sue White