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Product Manual

BL-521 RS232 Bluetooth Converter

Version: 3.2



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1. Introduction

Brainboxes BL-521 RS232 Bluetooth Adapter is a fully embedded, stand-alone Bluetooth solution, which will Bluetooth enable any device with an RS232 port. Unlike many of Brain Boxes wide range of Bluetooth products, BL-521 does not require any additional Bluetooth software.

For many applications BL-521, when used in combination with another Bluetooth product (e.g. Brain Boxes USB adapter connected to a PC with Brain Boxes Bluetooth Software Suite) essentially replaces the cable, thus freeing the device from the limits imposed by the cable specification. The connection uses Bluetooth security to ensure that sensitive data is not "sniffed" by any unauthorised source, although this feature can be turned off.

BL-521 is designed as a cable replacement product. It's primary function is to offer "point to point" Bluetooth capabilities to devices which otherwise do not have the capacity for such behaviour. This capability is configured by a "set and forget" interface, which is not designed to cater for multiple device connection scenarios. BL-521 is only capable of connecting to one other Bluetooth device at a time.

It is user configurable to baud rates between 244 and 1.3Mbaud in steps of 244, with no, odd, or even parity, and with 1 or 2 stop bits. Its default factory settings are 115,200 baud, no parity, 8 data bits and 1 stop bit.

A convenient hardware reset button can be used to reset various functionality of the device including a restore of factory settings.

We trust that if you adhere to the following procedures you will enjoy many years of useful service from your Brainboxes Bluetooth Converter.

2. Changing Settings

This device contains a comprehensive set of Bluetooth and COM port features which can be changed from an easy to use "bulletin board" type configuration menu. This section gives full details about the changes that can be made, how to make them, and the implications the changes will have on the manner in which your BL-521 behaves.

2.1. Configuration features at a glance

Below is a quick list of the configuration options that are available from the interactive menu. They will be covered in more detail later in this section.

- View/Set local COM port settings (baud rate, parity, stop bits)
- View/Set Discoverability, Security mode and PIN number
- View/Set Pairing options (including pairing to another BL-521)
- View/Set Client/Server configuration (Client connects to Server important if "pairing" 2 BL-521's)
- View/Set Local Device Name and Device Class
- View all "factory" and modified settings plus local Bluetooth Address
- Disable/enable configuration menu
- Permanently update "factory" settings

2.2. Accessing the configuration menus.

The BL-521's configuration menus are available at any time that there is no Bluetooth radio connection established with another device. As soon as a Bluetooth connection is made, the data sent to BL-521 will be sent over the radio link to the remote device. As soon as the Bluetooth connection is broken, the configuration menu's become available again.

Sending a single "Carriage Return" character to the BL-521 activates the initial main menu.

The example given below to connect to the configuration menus is performed in Windows using HyperTerminal, a terminal application that ships with Windows. If you are using a different operating system, you will need a similar "terminal" or "tty" type application (e.g. minicom), which talks directly to a serial port in that operating system.

First, connect BL-521, along with the supplied gender changer, to an available serial port on your computer. In this example, we use COM1.

Ensure the power adapter is connected and switched on (the LED's on the BL-521 should come on).

Start HyperTerminal by clicking "Start\All Programs\Accessories\Communications\HyperTerminal". Some versions of Windows have a slightly different sequence of clicks, or do not install HyperTerminal by default. Please refer to your operating system instructions for more details.



If you are running HyperTerminal for the first time you will be prompted for information about your location. This section must be filled in, but is not used for our purposes, so you are free to add anything here.

The next screen is just to name this instance of the connection. You are free to name this as anything except an existing device name (e.g. COM1).



Click OK

Connect To	? 🛛
BL-521 (Enter details for	Configuration
Country/region:	United Kingdom (44)
Area code:	151
Phone number:	
Connect using:	Conexant SmartSCM Serial Modern 😒
	Conexant SmartSCM Serial Modern
	TCP/IP (Wineack)

Select the Port that you have connected the BL-521 to. All other fields will then be "greyed out" Click OK

COM1 Properties		? 🔀
Part Settings		-
Bits per second	115200	
<u>D</u> ata bitr	8	*
Early:	None	*
Stop bits:	1	
Elem control	Norm	
1	Best	ore Defaults
0	K. Cancel	Apply

Select the communications parameters that your device is configured to. In this example we have used the factory defaults normally applied. If you have previously reconfigured these values, then you will need to make sure the settings here match those you have configured to device to be.

Click OK



HyperTerminal should now be running.

Now hit the "Enter" key once. This should activate the main configuration menu as shown in Main Menu below. You should be able to now interact with the menus as described in the following sections.

As a general principle, from any menu screen hitting the "Enter" key refreshes the current menu and hitting 0 returns the user to the previous menu.

Reminder: The configuration menu is not available whilst a radio (Bluetooth) connection is established.

3. Configuration Menu.

3.1. Main Menu

BL-521 Configuration - HyperTerminal	- 🗆 🛛
Ele Edit View Call Transfer Help	
	~
========== MAIN MENU ==============	
Version 2.10	
to Read the Start Sciences	
Key [1] - Modify COMM Settings	
Key [2] - Modify Bluetooth Settings	
Key [3] - Display Current Settings	
Key [4] - Restore Factory Settings	
Key [5] - Disable Interactive Menu	
	-
	¥
<	2
Connected 00:26:56 Auto detect 115200 8-N-1 Call NUM Caller Profester	1

Sending the "Enter" character to the BL-521 accesses its main menu. This is also sometimes referred to as "Carriage Return". All configuration options for BL-521 are accessed via this menu.

3.2. Communications Parameters

BL-521 Configuration - HyperTerminal	- 🗆 🖂
Ele Edit Yew Cell Iransfer Help	
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings	
Key [5] - Disable Interactive Menu	
<	2
Connected 00:41:46 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Cepture Proteche	-4

Selecting option 1 from the "Main Menu" menu displays the following Communications settings menu.



It is from this menu that all available serial port settings can be changed. The available options are detailed below.

3.2.1. Baud Rate

The factory set communications parameters for your BL-521 are as follows...

Baud Rate:	115,200
Data Bits:	8 (non-configurable)
Parity:	None
Stop Bits:	1
Handshaking:	None (non-configurable)

You can alter these settings by using the configuration menu options shown below.

Elle Edit View Call Transfer Help	
Key [0] - MAIN MENU Key [1] - Set Baud Rate Key [2] - Set Parity Key [3] - Set Stop Bits Key [4] - Apply COMM Settings	2
	6

After selecting option 1 "Set Baud Rate" from the "Modify COMM Settings" menu, the following menu is displayed.

Bit gew Call Transfer Heb Image: State State Image: State State State State State Image: State S	8L-521 Configuration - HyperTerminal	
<pre>C C C C C C C C C C C C C C C C C C C</pre>	Bie Edit View Call Iransfer Help	
<pre>Key [0] - PREVIOUS MENU Key [1] - 921600 Key [2] - 460800 Key [3] - 230400 Key [3] - 230400 Key [5] - 57600 Key [5] - 57600 Key [6] - 38400 Key [6] - 38400 Key [7] - 19200 Key [8] - 9600 Key [8] - 9600 Key [1] - 2400 Key [1] - 1200 Key [1] - 1200 Key [1] - Enter your own baud rate Baud rate: 115200 (actual: 115168) - applied -</pre>	0 📽 🖷 💲 🚥 🎦 📾	
	Key [0] - PREVIOUS MENU Key [1] - 921600 Key [2] - 460800 Key [3] - 230400 Key [3] - 230400 Key [4] - 115200 Key [5] - 57600 Key [6] - 38400 Key [6] - 38400 Key [7] - 19200 Key [8] - 9600 Key [1] - 2400 Key [1] - 2400 Key [1] - 1200 Key [1] - 1200 Key [1] - Enter your own baud rate Baud rate: 115200 (actual: 115168) - applied -	
	C III III IIIIIIIIIIIIIIIIIIIIIIIIIIII	

Selecting 0 immediately returns you to the previous menu. Any changes made in this menu will be remembered when leaving, and will be applied by selecting option 4 "Apply COMM Settings" from the previous "Modify COMM Settings" menu. Selecting any other option will store the appropriate configuration selection.

A range of popular pre-set baud rates is offered in this menu along with an option for you to set your own. Due to some technical limitations, it is not possible for us to achieve all of these baud rates exactly, although most of them are available to within 1%. Normal RS232 operation is not affected by such small differences in data rates unless long streams of continuous data are being used. The Actual baud rate achieved will be displayed next to your selection.

4.2.1.1. Entering your own baud rate

Selecting option (d) from the "Set Baud Menu" allows the user to configure BL-521 to operate at any baud rate the user desires between 244 baud and 1.3M baud. BL-521 will calculate the nearest actual baud rate it is able to achieve and display it next to your selection, as shown in the configuration menu's below.

BL-521 Configuration - HyperTerminal	
Bie Edit View Call Transfer Help	
0 📽 🖷 🕱 📫 🎦 📾	
Key [0] - PREVIOUS MENU Key [1] - 921600 Key [2] - 460800 Key [3] - 230400 Key [4] - 115200 Key [6] - 38400 Key [6] - 38400 Key [7] - 19200 Key [8] - 9600 Key [9] - 4800 Key [1] - 2400 Key [1] - 2400 Key [1] - 115200 Key [2] - 4800 Key [3] - 2400 Key [4] - 115200 Key [6] - 38400 Key [6] - 38400 Key [6] - 3900 Key [6] - 1200 Key [6] - Enter your own baud rate Baud rate: 115200 (actual: 115168) - applied	
S	2
Connected 00:00:31 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Cepture Print edu	

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Iransfer Help	
Enter the new baud rate:_	
C IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	8
Connected 00:34:38 Auto detect 115200 8-N-1 SCPOLL CAPS NUM Cepture Print ed	No.

Enter the baud rate value you want, followed by "ENTER"

The value you enter must be between 244 and 1382400 otherwise an error will be shown. You will be given a further opportunity to enter a valid value.



😪 BL-521 Configuration - HyperTerminal	
Ele Edit View Call Transfer Help	
Enter the new baud rate:15000	~
c	> ~
Connected 00:36:58 Auto detect 115200 8-N-1 SCROLL CAPS NUM Cepture Print echo	

Entering a valid number here such as shown below results in your selection being accepted and your baud rate selection being displayed at the bottom of the menu.

Selecting 0 immediately returns you to the previous menu storing any changes you have made; selecting any other option will store the appropriate configuration selection. As shown below, your configuration selection will not actually be applied at this point.

📚 BL-521 Configuration - HyperTerminal	
Ele Edit View Call Transfer Help	
0 🖉 🖷 🕱 ඟ 🗃	
<pre></pre>	
Connected 00:01:09 Auto detect 115200 8-N-1 SCROLL CAPS NUM Costure Protected	×

The Menu identifies this new selection as being unapplied. To apply this selection, select the "Apply COMM Settings" from the previous menu. This can be reached by selecting option "0".

Unapplied settings are discarded during a re-boot of BL-521.

3.2.2. Data bits.

Unfortunately this setting cannot be changed. BL-521 only supports the 8 data bit format. Thus there is not a configuration menu option for this setting.

3.2.3. Parity

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
D 📽 👳 🕱 ඟ 🔁 📾	
	^
Modify COMM Settings	
Key [0] - MHIN MENU Key [1] - Set Baud Pate	
Key [2] - Set Parity	
Key [3] - Set Stop Bits	
Key [4] - Apply COMM Settings	
S	2
Connected 00:40:49 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Cepture Print edue	-#

After selecting option 2 from the "Modify COMM Settings" menu, the following menu is displayed.

BL-521 Configuration - HyperTerminal	
Ele Edit Vew Cell Transfer Help	
Set Parity	~
Key [0] - PREVIOUS MENU Key [1] - NO parity Key [2] - ODD parity Key [3] - EVEN parity Parity: NO parity - applied	
-	-
C	3
Connected 02:38:17 Auto detect 115200 8-N-1 SCHOOL CAPS NUM Collare Protected	

Selecting 0 immediately returns you to the previous menu storing any changes you have made; selecting any other option will store the appropriate configuration selection. As shown below, your configuration selection will not actually be applied at this point.



Configuration changes are only applied when option 4 (Apply COMM settings) is selected from the previous "Modify COMM Settings" Menu.

Unapplied settings are discarded during a re-boot of BL-521.

3.2.4. Stop Bits

8L-521 Configuration - HyperT	erminal			
Bie Edit View Call Iransfer Help				
00000000000				
				~
Modify CO	MM Settings ==			
	==================			
Key 101 - MHIN MENU	Data			
Key [2] - Set Parity	V			
Key [3] - Set Stop	Bits			
Key [4] - Apply COM	1 Settings			
				-12
				~
Connected 00:41:01 Auto detect	115200 8-N-1 SCHOOL	CAPS NUM	Capture Print eche	-

After selecting option 3 from the "Modify COMM Settings" menu, the following menu is displayed.



Selecting 0 immediately returns you to the previous menu storing any changes you have made; selecting any other option will store the appropriate configuration selection. As shown below, your configuration selection will not actually be applied at this point.



Configuration changes are only applied when option 4 (Apply COMM settings) is selected from the previous "Modify COMM Settings" Menu.

Unapplied settings are discarded during a re-boot of BL-521.

3.2.5. Applying Communications Settings

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
C 📽 📾 🕉 🗚 🛱	
	~
Modify COMM Settings	
Key [0] - MAIN MENU Key [1] - Set Baud Rate Key [2] - Set Parity Key [3] - Set Stop Bits	
- Hopiy Comm Settings	
	>
Connected 00:41:13 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Cepture Prote	eche d

After selecting option 3 from the "Modify COMM Settings" menu, the following menu is displayed. Obviously the values displayed are dependent on your own individual configuration.

RL-521 Configuration - HyperTerminal	
Ele Edit Yew Call Transfer Help	
Apply COMM Settings	*
Baud rate:15000 - UNAPPLIED (Currently 115200)Parity:0DD parity - UNAPPLIED (Currently NO parity)Stop Bits:2 stop bits - UNAPPLIED (Currently 1 stop bit)	
Key [0] - PREVIOUS MENU Key [1] - Apply these settings	
	>
Connected 00:03:42 Auto detect 115200 (I-N-1 2000L CAPS NUM CAPTOR PROCEDURE	10

Selecting 0 immediately returns you to the previous menu storing any changes you have made.

Selecting "1" will immediately apply any new communications parameters you have selected from the other COMM menu's.



If you have changed any communications parameters, and wish to continue to interact with the configuration menu, you will need to modify the communications parameters of the terminal application you are using to communicate to BL-521. The easiest method of performing this in HyperTerminal is to close the application down and re-start it, setting the alternative parameters during the initial application configuration.

3.3. Bluetooth Parameters

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
	~
MAIN MENU	
Version 2.10	
No. 2028 COL SIGNAL CONTRACTOR OF	
Key [1] - Modify COMM Settings	
Key [2] - Modify Bluetooth Settings	
Key [3] - Display Current Settings	
Key [4] - Restore Factory Settings	
Key [5] - Disable Interactive Menu	
	10
A CONTRACTOR AND A CONT	101
Connected 00:42:01 Auto detect 115200 8-N-1 Auto data MUM Captore Hole edite	

Selecting option 2 from the "Main Menu" menu displays the following Bluetooth settings menu.



It is from this menu that all available Bluetooth settings can be changed. The available options are detailed below.

3.3.1. Discoverability

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Iransfer Help	
0 😹 📾 🕉 ඟ 🤁 📾	
	~
====== Modify Bluetooth Settings =======	
Karan a horn hend	
Key 10J - MHIN MENU	
Key [1] - Set Discoverability	
Key [2] - Set Security Mode	
Key $[6] = Set PIN$	
Key [5] - Set Partner Device	
Key [6] - Set Client/Server	
Key [7] - Set Local Name	
Key [8] - Set Class of Device	
-	
3	v
¢	>
Connected 00:06:24 Auto detect 115200 8-N-1 SCROLL CAPS NUM Contract	Print Action

After selecting option 1 from the "Modify Bluetooth Settings" menu, the following menu is displayed.



Selecting 0 immediately returns you to the previous menu storing any changes you have made.

Selecting option "1" will immediately render BL-521 "Discoverable". This means that any other Bluetooth device can see BL-521 when it performs a device discovery.

Selecting option "2" immediately renders BL-521 "non-discoverable". No other Bluetooth devices will be able to see BL-521 when they perform a device discovery. However, in this mode, your BL-521 is still "connectable". This means that any other Bluetooth device that knows about your specific BL-521 (i.e. it knows the Bluetooth address of the individual unit) can still connect to it. You may wish to set this option to avoid confusion when many BL-521's exist in close proximity to each other.

Unlike the communications settings, this Bluetooth setting is applied with immediate effect.

3.3.2. Security Mode

BL-521 Configuration - HyperTerminal	
Ble Edit View Call Iransfer Help	
0 📽 👜 🌋 📫 🎦 📾	

====== Modify Bluetooth Settings =======	
Key [0] - MAIN MENU	
Key [1] - Set Discoverability	
Key [2] - Set Security Mode	
Key [3] - Set Encryption	
Key [4] - Set PIN	
Key [5] - Set Partner Device	
Key [6] - Set Client/Server	
Key [7] - Set Local Name	
Key [8] - Set Class of Device	
3	×
C	5
Connected 00:06:55 Auto detect 115200 8-N-1 SCROLL CAPS NUM Cepture	Post echo

After selecting option 2 from the "Modify Bluetooth Settings" menu, the following menu is displayed.

🗣 BL-521 Configuration - HyperTerminal	
Ele Edit View Call Transfer Help	
Key [0] - PREVIOUS MENU Key [1] - 1 (Low) Key [2] - 2 (Medium) Key [3] - 3 (High) Security Mode: 3 (High)	<
	×
Connected 00:07:08 Auto detect 115200 8-N-1 SCROLL CAPS NUM Culture Print echil	

The factory set security mode is 3 (Highest)

Selecting 0 immediately returns you to the previous menu storing any changes you have made.

Selecting option "1" will immediately place your BL-521 into security mode 1. This is the lowest security mode that the BL-521 can be configured to. Connections, including service discovery, can take place without the need for "pairing" or "bonding". In mode 1, the Security Manager automatically accepts all access requests without initiating authentication, encryption, or authorization procedures. Any attempt by a remote application to perform authentication or encryption procedures will be rejected.

Selecting option "2" will immediately place your BL-521 into security mode 2. This mode allows remote Bluetooth devices to search for and retrieve the services on your BL-521, but will not allow them to connect unless the 2 devices are paired.

Selecting option "3" will immediately place your BL-521 into security mode 3. This is the highest security mode available. Connections of any kind from a remote Bluetooth device are only allowed after a successful "pairing" has been performed. No services will be shown to other Bluetooth devices unless the 2 devices are successfully paired.

Unlike the communications settings, this Bluetooth setting is applied with immediate effect.

3.3.3. Encryption

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Iransfer Help	
	~

====== Modify Bluetooth Settings =======	
Key [0] - MAIN MENU	
Key [1] - Set Discoverability	
Key [2] - Set Security Mode	
Key [3] - Set Encryption	
Key [4] - Set Partner Douice	
Key [6] - Set Client/Server	
Key [7] - Set Local Name	
Key [8] - Set Class of Device	
	-
	~
< I How have a second sec	3
Connected 00:07:28 Auto detect 115200 8-N-1 SCROLL CAPS NUM Cepture Print educ	- de

After selecting option 3 from the "Modify Bluetooth Settings" menu, the following menu is displayed.

📚 BL-521 Configuration - HyperTerminal	
Ele Edit Yew Call Transfer Help	
Key [0] - PREVIOUS MENU Key [1] - Disabled Key [2] - Point to Point Key [3] - Point to Point & Broadcast Encryption: Disabled	() ()
*	2
Connected 00:07:52 Auto detect 115200 B-N-1 CAPS NUM Cetture Protection	-

The factory set Encryption mode is "Disabled". This can be changed to enable "Point to Point" or "Point to Point & Broadcast".

Unlike the communications settings, this Bluetooth setting is applied with immediate effect.

3.3.4. PIN

. The PIN (Personal Identification Number) is used to create a secure and trusted connection between 2 Bluetooth devices during a process called pairing or bonding.



After selecting option 4 from the "Modify Bluetooth Settings" menu, the following menu is displayed.



The PIN can be any combination of printable characters. The PIN is only used when BL-521 is configured to be in security mode 3 (High security)

The factory set PIN is "1234". This can be changed to a range of pre-selected values, or you may enter you own combination up to a maximum of 8 characters.

Selecting 0 immediately returns you to the previous menu storing any changes you have made.



Selecting option 4 from the "Set PIN" menu will display the following.

BL-521 Configuration - HyperTerminal	
Elle Edit View Cell Transfer Help	
Enter the new pin: -	60 D
	18
Connected 00:50:42 Auto detect 115200 8-N-1 SCROLL CAPS NLM Sectore Print etho	11

In this field, you can enter your desired PIN code. This can be any printable alphanumeric character or symbol, but you should take care to choose a PIN appropriately remembering that some Bluetooth devices (e.g. cell phones) only have limited input mechanisms and may not have a full range of characters available.

SL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
C 📽 📾 🕉 🗠 🎦 📾	
Enter the new pin: 555555555 Error: The pin must be 8 characters or less Enter the new pin:	0
	2
Connected 00:50:59 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Centure Print eche	

Due to memory considerations the length of the PIN code is restricted to 8 characters. If you try to create a PIN code that is larger than this, an error message is generated (as above) and you will be given another opportunity to enter your own PIN

8L-521 Configuration - HyperT	erminal				
Bie Edit View Call Iransfer Help					
00000000000					
Enter the new pin: rs232					^
C					~
Connected 00:51:56 Auto detect	115200 8-N-1	liscepti	CAPE NUM	Captize Pent e	chei d

Once you have entered the PIN you want, you should complete your request by hitting the "ENTER" key, whereupon the original menu is displayed, showing your new PIN selection.



If your BL-521 is to be configured into Client mode, this is the PIN that will be used by BL-521 to initiate pairing with the remote device before any connection is made. If your remote device is another BL-521 in Server mode, you will need to ensure that "both" devices are configured to use the same PIN number.

Unlike the communications settings, this Bluetooth setting is applied with immediate effect.

3.3.5. Partner Device

A partner device is a remote Bluetooth device to which you wish to bond to, or have bonded. As such, this setting is ignored if BL-521 is configured to use Security Mode 1 (Lowest) as this setting is essentially "no security" and does not require bonding.

Adding a partner device using this feature does not stop remote devices bonding with BL-521 whilst it is in Server Mode. When Set to Client mode, BL-521 uses this Setting in order to connect to a remote device.

Once a remote device has successfully partnered with BL-521, no other Bluetooth device will be able to connect until the pairing has been cleared. The pairing can be expired either by interacting with this menu option, or by invoking a "short" reset by pressing the reset button.

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Iransfer Help	
Key [0] - MAIN MENU Key [1] - Set Discoverability Key [2] - Set Security Mode Key [3] - Set Encryption Key [4] - Set PIN Key [6] - Set Client/Server Key [6] - Set Client/Server Key [7] - Set Local Name Key [8] - Set Class of Device	
	2
Connected 00:09:38 Auto detect 115200 8-N-1 SCROLL CAPE NUM Cepture Protitation	

After selecting option 5 from the "Modify Bluetooth Settings" menu, the following menu is displayed.

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
🗅 😅 🖉 🙃 🖉 📾 🖸	
	<u>^</u>
Set Partner Device Key [0] - PREVIOUS MENU Key [1] - Add partner device	
Connected 00:21:09 Auto detect 115200 8-N-1	CROLL CAPS NUM Capture Print echo

Selecting 0 immediately returns you to the previous menu storing any changes you have made.

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
	Į.
	1
Set Partner Device Key [0] - PREVIOUS MENU Key [1] - Add partner device	
Connected 00:21:20 Auto detect 115200 8-N-1 SCHOLL CARS NUM Captorn Perm	echil

Selecting option "1" brings up the following menu.

9	BL-521 Configuration - HyperTerminal	
Đ	ie Edit Yew Cell Iransfer Help	
E) 😂 💷 🐉 📾	
	Enter the address of the partner device:_	< 13
1		8
Co	onnected 00:53:26 Auto detect 115200 8-N-1 SCPCIL CPS NUM Cepture Profession	1

You should enter here the Bluetooth Address (BD_ADDR) of the remote device you wish to pair to followed by ENTER. This should be in the same format as indicated on the products label (NAP-UAP-LAP, for those of you who know)

SeBL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
Enter the address of the partner device:000a-4f-00082d_	
<	3

This will now refresh the menu with the address just entered and changes the option to allow removal of the entered device



The option to remove this newly entered device exists at this point should you have made a mistake.



Once BL-521 has successfully paired with the remote device (or vice-versa) the menu will update to give the user the option to expire the pairing. This can also be achieved by performing a "short" reset using the reset button. This expiration only deletes the Link Key created during pairing and doesn't remove the device itself

If a remote Bluetooth device has previously paired to the BL-521 then this menu will display the first time the "Set Partner Device" menu is accessed.



Selecting the option to remove the partner device as below

🗣 BL-521 Configuration - HyperTerminal	×
Elle Edit View Call Iransfer Help	
Key [0] - PREVIOUS MENU Key [1] - PREVIOUS MENU Key [1] - Remove partner device Key [2] - Expire pairing Partner Device: 000A-4F-00082D (paired)	(1)
()	8
Connected 00:43:54 Auto detect 115200 8-N-1 SCROLL CAPS NUM Centure Print refus	6

will remove both the link key created during the pair, and it will remove the partner device itself from the memory of BL-521.



All the settings in this section are applied with immediate effect.

3.3.6. Client Server



After selecting option 6 from the "Modify Bluetooth Settings" menu, the following menu is displayed.



Selecting 0 immediately returns you to the previous menu storing any changes; selecting any other option will store the appropriate configuration selection.

The default configuration of your BL-521 is set to "Server" operation. This means that the BL-521 will wait for devices to connect to it. Changing this setting to "Client" will put the BL-521 into a state where it will attempt to connect to the device contained in its internal database. This remote device is entered into BL-521 using the previous menu option, or by pairing with BL-521 from the remote device whilst BL-521 is in server mode.

It is this option that requires interaction if you wish to configure 2 BL-521's to communicate to each other to create a "true" cable replacement scenario.

Unlike most other Bluetooth settings, the BL-521 requires re-booting before this option will be enabled.

3.3.7. Local Device Name

In scenario's where more than 1 BL-521 are to be used in the same geographical location (i.e. they are all in range of each other/the controlling device), it may be pertinent to change the name of each device to more easily identify each individual device.



After selecting option 7 from the "Modify Bluetooth Settings" menu, the following menu is displayed.

BL-521 Configuration - HyperTerminal	
Elle Edit Yew Call Iransfer Help	
Key [0] - PREVIOUS MENU Key [1] - "BL-521 BB RS232 Converter1" Key [2] - "BL-521 BB RS232 Converter2" Key [3] - "BL521_1" Key [4] - "BL521_2" Key [5] - Enter your own local device name Local Device Name: BL-521 BB RS232 Converter	~
Connected 00:45:20 Auto detect 115200 8-N-1 SCHOLL CAPS NLM Conture Proteche	>

The Factory setting for the local device name is "BL-521 BB RS232 Converter".

Selecting 0 immediately returns you to the previous menu storing any changes; selecting any other option will store the appropriate configuration selection.



Selecting options 1-4 configure the BL-521 to use one of the pre-configured name options. Our example chooses option 1

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
	^
======================================	
Key [0] - PREVIOUS MENU	
Key [1] - "BL-521 BB RS232 Converter1"	
Key [2] - "BL-521 BB RS232 Converter2"	
Key [3] - "BL521_1"	
Key [4] - "BL521_2"	
Key [5] - Enter your own local device name	
Local Device Name: <u>BL-521 BB RS232 Converter1</u>	
S	3
Connected 00:45:50 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Cather Print edue	



If you wish to use a different name, you'll need to select option 5

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
C 📽 📾 🕉 🗠 C 🗃 📽 🐨	
Enter the new local name:_	^
8	2
Connected 80:28:31 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Capture	Print eche

Enter the name you'd like your BL-521 to display

BL-521 Configura	tion - HyperT	erminal						
Elle Edit Yew Call	Iransfer Help							
0 😂 👘 🎖 🕫	86							
Enter the n Error: The Enter the n	ew local local na ew local	name:aaa me must b name:_	aaaaaa e 31 c	aaaaa harac	aaaa ters	aaaaa or le	18888888 1925	a
¢	1							8
Connected 00:20:55	Auto detect	115200 8-N-1	SONOL	CVL2	NUM	Captize	Trint other.	

Memory constraints mean that you must ensure that your desired name is less than 31 characters. You cannot use the "delete" key as this will be interpreted as part of the name.



Press Enter when Happy with your choice

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
D 😂 📾 🕇 ඟ 🖰 📾 🚰	
	-
Set Local Name	
Key [0] - PREVIOUS MENU Key [1] - "BL-521 BB RS232 Converter1" Key [2] - "BL-521 BB RS232 Converter2" Key [3] - "BL521_1" Key [4] - "BL521_2" Key [5] - Enter your own local device name Local Device Name: <u>BL-521 Manual 23</u>	
	~
Connected 00:46:30 Auto detect 115200 8-N-1 SOUGL CAPS NUM Catture Print edue	-

The menu will now update with your chosen name selection.

3.3.8. Device Class

Some remote device applications will only communicate to devices of a certain type. This menu option allows you to reconfigure your BL-521 to appear as a number of different device types.



After selecting option 8 from the "Modify Bluetooth Settings" menu, the following menu is displayed.



The Factory setting for the Class of device is "Peripheral".

Selecting 0 immediately returns you to the previous menu storing any changes; selecting any other option will store the appropriate configuration selection.



This menu option allows the selection of a number of different device types as defined by the Bluetooth specification.



This option does not take effect until BL-521 is re-booted.

3.4. Display Factory Settings

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
	~

========= MAIN MENU ============	
Version 2.10	
to Ether the analysister contact	
Key [1] - Modify COMM Settings	
Key [2] - Modify Bluetooth Settings	
Key [3] - Display Current Settings	
Key [4] - Restore Factory Settings	
Key [5] - Disable Interactive Menu	
	1
0	
Consideration to the second se	100
Connected UU:42:25 Auto detect 115200 8-N-1 NUM	

Selecting option 3 from the "Main Menu" menu displays the following Current settings menu.



2 / 1	Undating	Eastan	Sottings
3.4.1.	Updating	ractory	Settings

	Δ.
Elle Edit View Call Transfer Help	
Baud rate: 115200 (actual: 115168) Parity: NO parity Stop Bits: 1 stop bit Local Device: 0050-C2-03C983 Local Device Name: BL-521 Manual 23 Discoverability: On Security Mode: 3 (High) Encryption: Disabled PIN Code: rs232 Partner Device: None Client/Server: Server (accepts incoming connections) Class of Device: Phone/Modem Key [0] - MAIN MENU Key [1] - Save current settings as factory default settings	1
1	~
C	_

Selecting option 1 from this Current settings menu allows any user settings to be used to update the "factory" settings, providing some level of protection from losing application configuration settings during a device reset when the reset button is activated.



This is not something you really want to do unless you're sure you have the settings as you want them and are sure you can remember them, as there is no way back from here...



Entering any character other than that required will abort the update. The PROCEED command is case sensitive and must be followed by <ENTER>.

8L-521 Configuration - HyperTerminal	
Bie Edit View Call Transfer Help	
D 📽 🖷 🐉 🗠 🗃 🗳 🖒	
This option changes the factory settings The settings cannot be restored by the reset button Type PROCEED to apply changes Type any other character sequence to abort	0
	~
Connected 00:27:14 Auto detect 115200 8-N-1 SCROLL CAPS NUM Conture Prediate	1 3



All the settings in this section are applied with immediate effect.

3.5. Restoring Factory Settings

Ele Edt Vew Cal Transfer Heb Image: State State State Image: State State State MAIN MENU Image: Wersion 2.10 Image: W	BL-521 Configuration - HyperTerminal	
D D D D D D D D D D D D D D D D D D D	Edit View Call Iransfer Help	
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu	📽 🗇 🕉 🗅 🎦 🛱	
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu		~
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu		
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu	======================================	
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu	Version 2.10	
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu		
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu	e stad mit deze standitrikas:	
Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu	Key [1] - Modify COMM Settings	
Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu	Key [2] - Modify Bluetooth Settings	
Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu	Key [3] - Display Current Settings	
Key [5] – Disable Interactive Menu	Key [4] - Restore Factory Settings	
	Key [5] – Disable Interactive Menu	
J		-
s	10	2
Connected 00:42:44 Auto detect 115200 8-N-1 SCHOLL CAPS NLM Centure Print edue	nected 00:42:44 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Costure Proteche	1

Selecting option 4 from the main menu displays the following restore factory settings menu.

🗣 BL-521 Configuration - HyperTerminal	<
File Edit View Call Transfer Help	
D 📽 🖷 🐉 ඟ 🔁	
Baud rate: 115200 (actual: 115168) Parity: NO parity Stop Bits: 1 stop bit Local Device Name: BL-521 BB RS232 Converter Discoverability: On Security Mode: 3 (High) Encryption: Disabled PIN Code: 1234 Partner Device: None Client/Server: Server (accepts incoming connections) Class of Device: Peripheral Key [01 - MATN MENU]	
Key [1] - Restore these factory settings	No.
Connected 00:05:16 Auto detect 115200 8-N-1 SCROLL CAPS NUM Capture Print echin	

Be sure to take a note of these settings as you will need to ensure that the next time you attempt to communicate with your BL-521 that you use these new settings.

Remember that the original factory settings may have been updated using the previous menu.

All the settings in this section are applied with immediate effect.

3.6. Disabling Interactive Menu

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Transfer Help	
Ta Co S = S	
	~
=========== MAIN MENU =============	
Version 2.10	
Key [1] - Modify COMM Settings Key [2] - Modify Bluetooth Settings Key [3] - Display Current Settings Key [4] - Restore Factory Settings Key [5] - Disable Interactive Menu	
1	~
	2
Connected 00:42:57 Auto detect 115200 8-N-1 SCHOLL CAPS NUM Centure	Print echin

Selecting option 5 from the main menu displays the following Disable Interactive menu menu.

BL-521 Configuration - HyperTerminal	
Ele Edit Yew Call Transfer Help	· · · · · · · · · · · · · · · · · · ·
C 📽 🕲 🖏 ඟ 🔁 📾	
Key [0] - MAIN MENU Key [1] - Disable menu (re-enabled by restoring defaults with	a long reset)
¢	2
Connected 00:29:29 Auto detect 115200 8-N-1 SCROLC CAPS NUM California Phytoscho	

Selecting option 1 from this menu means that no further interaction with the menu will be possible until the device has been completely reset to it's factory defaults by performing a "long" reset from the reset button.

Q	BL 521 Configu	ration - HyperT	erminal							
E	ile <u>E</u> dit <u>V</u> iew <u>C</u> all	Iransfer Help								1
C) 🗃 👘 🕉 🗉	000								
	Disabling -	menu							^	
k	R ()								2	
C.	onnected 00:28:25	Auto detect	115200 8-N-1	SCROD.	CAPS	NUM	Capture	Print echir:		

3.7. Resetting BL-521

The BL-521 has a "reset button" located on the side of the case. This button performs 2 different functions.

a) Resets Paired Devices.

A short press (less than 3 seconds) of the reset button causes any paired device information to be deleted. When the device is in low security mode, this will not have any effect on the devices operation, but whilst in high security mode, this will mean that another device can pair with BL-521, or that the original device must expire its bond in order to reconnect.

b) Resets BL-521 to factory defaults.

A long press (more than 3 seconds) of the reset button causes all factory defaults to be restored. Care should be taken here to remember that these "factory" settings can actually be updated via the interactive menu and thus may not be the same as the device was shipped with. The user should also remember that BL-521 is likely to need it's parameters re-configuring to ensure communications can be re-established with either the local serial device, or remote Bluetooth device.

3.8. Troubleshooting the configuration menu

If you are having difficulty connecting to the BL-521 configuration menu, follow these few simple steps...

- a) Ensure the power adapter is plugged in and switched on The LED's will light up on the BL-521
- b) Ensure the attached cable AND the gender converter are attached securely to an available RS232 port on your PC. If you are using a terminal or other "peripheral" type device, you may not need the gender converter attached.
- c) Check that your terminal/application has the correct communications parameters set. As it leaves the factory, the BL-521 is set to 115200 baud, no parity, 8 data bits, 1 stop bit.
- d) If you are still unable to communicate to the device, it may need a reset. Follow the instructions for resetting your device.

4. Physically connecting BL-521 to your RS232 device

4.1. Configuring the communications parameters.

Please refer to section 2 above for details on how to do this.

4.2. Physically connecting your device to BL-521 via the RS232 connector

Connector Pin-Outs for the enclosed cable are...



Your device may need an additional cable, such as a "cross-over" or "null-modem" cable. Please refer to your device's documentation for further details.

When the enclosed "gender changer" is connected, the Pin-Outs are...

The Female to Male "Gender Changer" allows maximum cabling flexibility where existing cabling is already attached.



The female connector is designed so that it can be plugged directly into a PC's motherboard COM port.

If you are connecting it directly to a different device you may need an additional cable, such as a "cross-over" or "null-modem" cable. Please refer to your device's documentation for further details.

5. Connecting to/from BL-521 over Bluetooth.

There are 3 ways BL-521 can be connected via Bluetooth.

- a) Client/Server Pair: 2 BL-521's, configured to perform a "true" cable replacement.
- b) Server: Connecting TO BL-521 from a remote Bluetooth device (Factory Default)
- c) Client: BL-521 is the Bluetooth device which initiates the connection

This section details all 3 methods.

5.1. "Cable Replacement"

One of the strongest features of BL-521 is that 2 of them can be configured to connect to each other and thus behave almost exactly as a cable. This configuration is very straightforward and is detailed below.

For BL-521's to connect as a pair, one of the devices needs to be configured as a client device, and one as a server. As the factory settings for BL-521 are "Server" it follows then that only 1 of the BL-521 pair needs any alternate configuration from that supplied.

It is advisable that you first configure the communications settings for each BL-521 so that they are suitable for the devices into which you are plugging them. When configuring a pair of BL-521's the Communications parameters (e.g. baud rate) of each BL-521 do not have to match each other's, only that of the devices into which they are connected.

Each BL-521 has a unique Bluetooth Address (BD_ADDR). This is printed on a label on the base of every product, but is also accessible from the "View Current Settings" menu detailed above.

For our example here, we will use a BL-521 with a BD_ADDR of 000A-4F-00082D, which we'll call the Server, and a second, with a BD_ADDR of 000A-4F-0013BB, which we'll call the Client. We'll leave all other settings for this example as factory defaults. As explained above we only need to change the settings of the Client device...

From the main menu select option 2 "modify Bluetooth settngs".

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Iransfer Help	
D 📽 👳 🕉 🗚 🛱	
	~
========= MAIN MENU ==============	
Version 2.10	
en Frod rati Abbil offensiter men	
Key [1] - Modify COMM Settings	
Key 121 - Modify Bluetooth Settings	
Kev [3] - Display Current Settings	
Key [4] - Restore Factory Settings	
Key [5] - Disable Interactive Menu	
	10
E	
A CONTRACTOR OF A CONTRACTOR O	1
Connected 00:42:01 Auto detect 115200 8-N-1 School Cons NUM Captore Frittende	-4

The following menu is displayed

BL-521 Configuration - HyperTerminal	
Elle Edit View Call Iransfer Help	
	~

====== Modify Bluetooth Settings =======	
Key 101 - MHIN MENU	
Key [1] - Set Discoverability	
Key [2] - Set Security Mode	
Key $[6] = Set PTN$	
Key [5] - Set Partner Device	
Key [6] - Set Client/Server	
Kev [7] - Set Local Name	
Key [8] - Set Class of Device	
2	~
	2
Connected 00:09:38 Auto detect 115200 8-N-1 SCROLL CAPS NUM Centure Print acte	

Select option 5 "set partner device". This tells the Client BL-521 what remote device it is supposed to try to connect to.

BL-521 Configuration - HyperTerminal	
Bie Edit View Cell Iransfer Help	
Set Partner Device Key [0] - PREVIOUS MENU Key [1] - Add partner device	0
<	>
Connected 00:21:20 Auto detect 115200 8-N-1 SCROLL CAPS NUM Capture Print echo	

You'll need to add the Server BL-521 into this menu option. Select option "1" which brings up the following menu.

	BL-521 Configuration - HyperTerminal	×
Ð	e Edit View Call Iransfer Help	
D		
	Enter the address of the partner device:_	< 1
0		*
Cor	mected 00:53:26 Auto detect 115200 8-N-1 SCPOLL CAPS NUM Cepture Print ache	4

You should enter here the Bluetooth Address (BD_ADDR) of the remote device you wish to pair (in our case this is 000A-4F-00082D) followed by ENTER. This should be in the same format as indicated on the products label (NAP-UAP-LAP, for those of you who know)

St. 521 Configuration - HyperTerminal	
Elle Edit View Gall Iransfer Help	
Enter the address of the partner device:000a-4f-00082d_	^
	5
Connected 00:58:15 Auto detect 115200 8-N-1 SCROLL CAPS NUM Capture Print echo	

This will now refresh the menu with the address just entered.



Select 0 to return to the previous menu and select option 6 "Set Client/Server"



After selecting option 6 from the "Modify Bluetooth Settings" menu, the following menu is displayed.



Select the client option. This setting is stored immediately and is not discarded upon a reboot. In fact it requires a re-boot in order to activate it.

Re-boot. When the Client BL-521 is switched on, it will connect to the Server device you have entered in the menu above, assuming of course that the server device is also powered up.

That's it - it really is that simple.

5.2. Server : Connecting TO BL-521 from a remote Bluetooth device.

Connecting to your BL-521 will vary depending on your application, but will usually consist of 3 Steps.

- 1 Configuring the BL-521's communications parameters.
- 2 Physically connecting BL-521 to your device.
- 3 Connecting to BL-521 from a remote device via Bluetooth and transferring data.

There are many different scenarios whereby a connection can be made to a BL-521 and consequently its attached device. The application scenarios will also depend on what sort of device you have attached to the BL-521. One worked example is shown here for illustrative purposes, but the principle will be the same regardless of the device



you are connecting to except perhaps the cabling arrangements your device might require.

In this example we have connected a Tektronix TDS220 Oscilloscope to a BL-521 and plugged in the power adapter included. No additional cables or gender changers were used in this application scenario. In order to communicate to the scope/BL-521 we have connected a Brainboxes USB adapter (Order code BL-554) to a laptop with Brainboxes Bluetooth software suite installed. If you are connecting to BL-521 with a different manufacturers Bluetooth product, please refer to the manufacturers instructions for that product.

Broadly, this process requires the following steps that are detailed below.

- a) Discover the device
- b) Secure the relationship (unless you've set BL-521 to a low security setting)
- c) Connect to the Serial Port Profile
- d) Connect your application to the COM port.

5.2.1. Discover the device

This is performed in Brain Boxes Windows software by first opening the "My Bluetooth Devices" window and clicking the discovery button. This sets the software to display all the Bluetooth devices it can find "in range".

Ny Bluetooth Devices		
Ble Edit Yew Favorites My Bluetooth	Devices Iools Help	22
(3 tax) · (2) · (3) / Search	Folders (S Discovery	Carrier Br Carrier Br "
Address My Bluetooth Devices	\smile	💌 🔁 Go
brainboxes		
Device	Status	Device Type

Assuming that your BL-521 is switched on and in range you should see it displayed (perhaps alongside other Bluetooth devices in range) in the main screen.

😰 My Bluetooth Devices			
Elle Edik View Favorikes	My Bluetooth Devices	Iools Help	A
(G Inst. + (G) + 🍠	Dearch 😥 Fo	olders 😧 Discovery	39
Address 🔯 My Bluetooth Device	95		🕶 🔁 Go
brainboxes		and the second second	3
Device T	Status	Device Type	
EL-521 BB R5232 C	onverter Discove	red Peripheral	() 2

5.2.2. Secure the relationship

This is where you must "Bond" or "Pair" with the device. This is a feature of Bluetooth, which allows secure communications to take place. It is also used to stop other devices from performing unauthorised connections.

You can start the bonding process by selecting and right clicking on your BL-521 from the main screen. This brings up a context menu from which you should select the "Bond" option.

If you have configured your BL-521 from the menu to use a low security mode (and thus not require bonding) then this step can be skipped and you can jump straight to section "5.2.3 Connect to the profile".



You will then be prompted to enter a PIN number. Enter the Pin number (which is 1234, unless you have used the configuration menu to change it). Click OK

Bluetooth PIN Code Request	×
The following device is attempting to connect to you.	OK.
correct PIN.	Reject
Remote Device: BL-521 BB RS232 Converter	200
1 <u>**</u>	
PIN: 1234	State of the second sec

The Icon of your BL-521 in the main window should now change to indicate a "bonded" status as shown below.

My Bluetooth Devices				
Elle Edit View Favorites	My Bluetooth D	evices Iool	s <u>H</u> elp	A
(G 1xe) + (G) + 🏂	Search [D Folders	Discovery	39
Address 🕵 My Bluetooth Device	5			👻 🛃 😡
brainboxes			-	3
Device T		Status	Device Type	
— 🧭 DL-521 BB R5232 Co	anverter D	bscovered	Peripheral	

5.2.3. Connect to the profile

In order to actually connect to the appropriate function on the BL-521 you will need to discover it's services. Double-Click the device selected.

My Bluetooth Devices			
Elle Edit View Favorites My Bi	uetooth Devices	Iools Help	A
(Ginet + (2) + 🔊 🔎	Search 😥 Foi	ders 😫 Discovery	20
Address 🔯 My Bluetooth Devices			👻 🔁 😡
brainboxes		and the second second	3
Device T	Status	Device Type	
📥 🧭 EL-521 BB RS232 Converte	er Discover	ed Peripheral	0
Serial 01			

This will display a serial port service called "Serial 01"

Double clicking this service (or right clicking and selecting the "connect" option), will create a COM port style connection to the BL-521.

The screen shot below shows that the port in our example here is listed as COM25, although yours will most likely be a much lower number than this.

😰 My Bluetooth Devices			- 🗆 🔀
Ele Edit Yew Favorites My Blueto	ooth Devices I look	r Help	1
(G 1x1 - O - 🎓 🔎 Sea	rch 😥 Folders	Discovery	>>
Address 🔯 My Bluetooth Devices			- 🔁 😡
brainboxes	-		3
Device T	Status	Device Type	
EL-S21 BB RS232 Converter	Connected	Peripheral	^
Seriel 01	CDM 25		

This "COM" port is now available for any application to use to communicate with your device, or in our case, the oscilloscope.

5.2.4. Connect your application to the COM port

In our initial testing at our labs, we used the HyperTerminal application included in Windows to open COM10. Setting HyperTerminal to save data to a file called screen.bmp, and activating the hardcopy feature of the oscilloscope, caused all data to be sent from the scope to the file as listed. This file could then be viewed using any picture editing software and displays an exact screen copy of the oscilloscope. Instructions for using HyperTerminal can be found in section 2.1 above

5.3. Client: BL-521 is the Bluetooth device which initiates the connection

The instructions in the above section for creating a "cable replacement" connection should be followed to place the BL-521 into Client Mode in order to initiate a connection to a remote device.

6. Upgrading

This product is not field-upgradeable. Please contact your sales representative for further details on obtaining future product upgrades.

7. Regulatory Information

Bluetooth product operating in 2.4GHz band for Home and Office use.

1. Europe - EU Declaration of Conformity

This device complies with the R&TTE Directive 1999/5/EC, and the following standards:

EN 60950: 1992; EN60335-1: 1994	Safety information Technology Equipment, including Electrical Business Equipment
ETS 300 826; EN 301 489-1/-17: 2000; EN50081 - 1: 1992; EN 50082 - 1: 1997	Electromagnetic compatibility
ETS 300 328-2:	2000 Radio Equipment and Systems (RES); Wideband transmission systems; Technical
	characteristics and test conditions for data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques.

7.1. Important Notice for use in France and Italy

Italy: License required for use. Your reseller will tell you the procedure to follow.

E'necessaria la concessione ministeriale anche per l'uso. Verification con Irivenditori la procedura da seguire.

France: Low power device (1mW), there is no limitation for indoor or outdoor use.

Dispositif à faible uissance (1mW), pas de limitation pour son usage à l'intérieur ou a l'extérieur.

7.2. Rest of World

Country restrictions apply for home and office use.



CE

Declaration of Conformity

RS232 Bluetooth Adapter. BL-521 Rev 7.

We, Brain Boxes Limited, of Unit 3c Wavertree Boulevard South, Wavertree Technology Park, Liverpool L7 9PF, United Kingdom declare that the Product listed above is in conformance with the essential requirements of the European Council Directive:

1999/5/EC (R & TTE)	Radio and Telecommunications Terminal Equipment Directive (following
	Annex III of this Directive) Article 6.4

The essential requirements being:

Safety of the user (Article 3.1a)	Following directive 73/23/EEC; 93/68/EEC
Electromagnetic Compatibility (article 3.1b)	Following directive 89/336/EEC
RF Part A Test Specificaiton	Doc 20B 353/0.91 02 July 2001

This declaration is based upon compliance with the following standards:

EN 60950: 2000	Safety information Technology Equipment, including Electrical Business Equipment
EN 301 489-1/-17: 2000; EN50081 – 1: 1992; EN 50082 – 1: 1997	Electromagnetic compatibility
EN 300 328-2 V1.1.1 (2000-07) EN 300 328-1 V1.2.2 (2000-07)	Harmonised EN covering essential requirements under article 3.2 of the RTTE directive.

This Declaration is made under our sole responsibility.

Authorised Signatory:

Kero

Date: 14 April 2003

P M Gray Brain Boxes Limited Unit 3c Wavertree Boulevard South Wavertree Technology Park Liverpool L7 9PF, UK

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Version History

Version	Date	Author	Checked By	Comments
1.0	dd/mm/yyyy	Name	Name	Initial version
2.0	10/01/2003	Gav		Added info for configuration menu options, changes in pinouts, and other features along with minor formatting changes.
2.1	14/01/2003	Gav		Minor formatting changes
3.0	03/04/2003	Gav	ETW;SE;DR; MW;OS;NPJ; PG	Updated to reflect changes on Rev7 Product PCB and updates to product firmware (V2.10)
3.1	11/04/2003	Gav	ETW;SE;DR; MW;OS;NPJ; PG	Minor mods and clarifications following review. Creation of index. Minor changes to device menu display updated.
3.2	11/04/2003	Gav	ETW;SE;DR; MW;OS;NPJ; PG	Section re-order, update tables.