

Troubleshooting and FAQ's

RS232 Bluetooth Adapters

BL-819/830, BL-521, BL-730

Version: 1.0



Table of Contents

1	Introduction	3
2	Troubleshooting Guide	4
	BL-521/730 Terminal Application Unresponsive	4
	Losing data when transmitting or receiving via the BL-521/730	4
	Garbled Characters in Terminal Application	4
	RTS/CTS option of device will not stay turned on	5
	Only one LED comes on when power is turned on for BL-521/730	5
	Data doesn't seem to be received by the product, but seems to be sent by it	5
	Interaction with the menu appears slow and unresponsive, but data does show eventually	5
	How do I connect to a device in HyperTerminal using a BL-521/730, 819 & 830	6
	Firmware upgrade (DFU wizard) fails	7
	How to upgrade the firmware on BL-521/730, 819 & 830	8
	How do I terminate a connection to a device in HyperTerminal using a BL-521/730, 819 & 830? ...	8
2.1	Frequently Asked Questions (FAQs)	9
	What is the pinout of BL-521 dongle/819 and 830?	9
	What version of the Bluetooth specification is supported?	9
	What Bluetooth profiles are supported by your devices?	9
	Is the headset profile supported?	9
	BL-521/730: LED Display	10
	BL-819/830: LED Display	10
	I am having trouble connecting to my Bluetooth Nokia Phone	11
	Where can I find more information on my BL-730 rs232 module?	11
	How do I upgrade firmware on my BL-521/730?	12
	Where are the drivers for my BL-521/730/819 & 830?	12
	What baud rates will your Bluetooth products work at?	12
	Over what distance will a Class 1 device communicate with a Class 2 device?	12
	What is the difference between BCSP and H4?	13
	What is the maximum distance your Bluetooth devices will cover?	14

	What is the temperature and humidity range for BL-521 and BL-730?	14
3.	Further Help	12

1. Introduction

The aim of this document is to provide a quick and easy method for users to diagnose and solve problems regarding the configuration and use of Brainboxes RS232 Bluetooth adapters without the need to contact the Technical support team.

The products this document is applicable to are:

BL-521 RS232 BLUETOOTH CONVERTER

BL-819 RS232 BLUETOOTH CONVERTER DEVICE END

BL-830 RS232 BLUETOOTH CONVERTER PC END

BL-730 RS232 BLUETOOTH CONVERTER MODULE

The most common Questions associated with these problems are listed in the form of a table along with descriptions and suggestions for corrective actions. The table also includes frequently asked questions.

2. Troubleshooting Guide

In the rare occasion that you experience difficulties using a Brainboxes Bluetooth RS232 adapter, please read and try any suitable suggestions from the table below before contacting our support team.

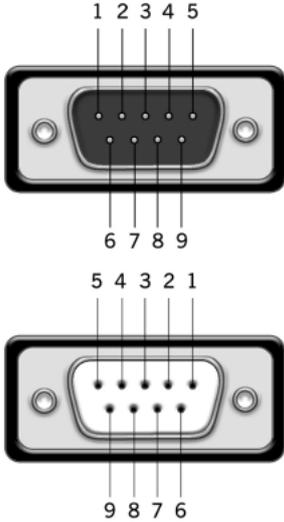
Question	Description	Solution
<p>BL-521/730 Terminal Application Unresponsive</p>	<p>Able to access the menu via HyperTerminal?</p> <p>Is the device in communication with something else?</p> <p>Device stuck in upgrade mode?</p>	<p>Try latest firmware and config utility</p> <p>Refer to Manual</p> <p>Device Plugged in and Powered up?</p> <p>Wrong baud rate?</p> <p>Are you using the correct Connector ? (need to use straight through not null modem)</p> <p>Try disabling near-by BT devices</p> <p>Perform power cycle</p> <p>Attempt to upgrade device but only change RTS/CTS to complete upgrade wizard</p>
<p>Losing data when transmitting or receiving via the BL-521/730</p>		<p>Enable RTS/CTS handshaking in firmware upgrade wizard or configuration utility wizard</p>
<p>Garbled Characters in Terminal Application</p>		<p>Using Latest firmware/utility?</p> <p>Set baud rate to match the application you are using.</p> <p>Is the cross over connector working?</p> <p>Device in upgrade mode: Select DFU upgrade wizard and only change "RTS/CTS" option to complete upgrade wizard</p>

Question	Description	Solution
RTS/CTS option of device will not stay turned on	This is a bug in a previous version of firmware/config utility.	Use latest firmware and config utility.
Only one LED comes on when power is turned on for BL-521/730	<p>This can mean that the security key is wrong</p> <p>Also happens when device is in upgrade mode or dead</p>	<p>Open HyperTerminal at the correct baud rate. If the error message "Incorrect Security" can be seen, return to Brainboxes.</p> <p>Device in upgrade mode. Attempt to upgrade device but only change RTS/CTS to complete upgrade wizard</p>
Data doesn't seem to be received by the product, but seems to be sent by it (e.g. data only travelling in one direction)	<p>This is normally the result of the product being configured as requiring RTS/CTS handshaking, but being plugged into a device that does not support it.</p> <p>Also possibly interference with interactive menu.</p>	<p>Firmware prior to 3.0 requires that pins 7 and 8 (RTS and CTS) of the 9 pin connector are connected to each other (looped back). Firmware from 3.0 onwards can switch off this requirement.</p> <p>Switch interactive menu off NB don't use this setting as default or the device will not be able to be configured again.</p>
Interaction with the menu appears slow and unresponsive, but data does show eventually.	This is normal operation when the product is in Client mode. The product is using most of its processor cycles to try and find and connect to a remote device.	Reconfigure the product to Server mode whilst attempting to configure other options

Question	Description	
<p>How do I connect to a device in HyperTerminal using a BL-521/730, 819 & 830?</p>	<p>Ensure that the device is plugged into the serial port on the pc and the power adapter is plugged in.</p> <p>Check the LED display on the device – this will indicate if the power is on and/or if a connection is already present (see section on LED display)</p> <p>If a connection is not present, then two methods of establishing a connection using HyperTerminal are:</p> <p>Type the command find in HyperTerminal, this will list all available bluetooth devices available to be connected to, then you simply type in cnx = followed by the number of the device in the list.</p> <p>Alternatively, if you know the MAC address of the device you wish to pair the device with, you can simply type in the command part= and then enter the MAC address of the device you wish to connect to.</p> <p>Note:</p> <p>To establish a connection from the device that you are using, that device needs to be set as a client, this is done by typing svr=0, make sure that the other device is set as a server in order to be able to receive connection.</p> <p>Secondly, it is a good idea to disable proximity mode by typing prox=0 as this will configure the device to pair with the first device that responds to it (not necessarily the desired one).</p> <p>Also, carefully consider the security mode you use. There are three options 1,2 and 3. Using option 2 or higher will require you to enter the identical pin number for both devices pin=, if you type pin without equals then the pin number will be displayed.</p> <p>Typing ? displays the list of commands available in HyperTerminal. If you type a command followed by ? then a description of the command is given.</p> <p>(Please see the manuals for further information)</p>	
Question	Description	Solution
<p>Firmware upgrade (DFU Wizard) fails</p>	<ol style="list-style-type: none"> 1. Product not connected 2. Product not configured for upgrade 	<ol style="list-style-type: none"> 1. Connect your converter to a suitable port on your PC and connect the power. 2. Follow instructions in following section

Question	Description
<p>How to upgrade the firmware on BL-521/730, 819 & 830</p>	<p>Firmware from version 3.01 upwards is field upgradeable:</p> <p>On the main menu in HyperTerminal select option 6 – Upgrade DFU</p> <p>Then select option 1 and type “PROCEED” exactly (case sensitive). At this point you will no longer be able to interact with the menu, it is now in a permanent state of upgrade.</p> <p>Now, run the Firmware Upgrade Utility software (DFU Utility) that came with the CD.</p> <p>Follow the instructions shown – select the first option “I wish to upgrade the firmware on my ____”</p> <p>Next select the COM port to which you have connected your product</p> <p>Point the upgrade wizard to where you have stored the upgrade file (these all have extension .dfu)</p> <p>Follow the onscreen instructions</p> <p>The firmware should install successfully.</p>
<p>How do I terminate a connection to a device in HyperTerminal using a BL-521/730, 819 & 830?</p>	<p>Turn the power off on one device and then the other device will be configurable. If you do not do this then the menu in HyperTerminal will be unresponsive as the connection will be still present, also, simply power cycling a device will not terminate the connection.</p> <p>Once a device is configurable:</p> <p>You can set the device as a client or server, so that both devices are either clients or servers i.e. enter svr=0 to set a device as client or svr=1 to set as server.</p> <p>Be careful that another device cannot pair with your devices, if you are using security mode 2 or higher than this will not be possible unless the other device is using the same pin number.</p> <p>If you type delpart this will delete the partner device from the connection and will allow a new partner device to be entered.</p> <p>(Please see the manuals for further information)</p>

2.1 Frequently Asked Questions (FAQs)

Question	Description	Solution																																																
<p>What is the pinout of BL-521 dongle/ 819 and 830?</p>	<p>The BL-521 has a male 9 pin D connector (DTE)</p> <p>The BL-819 has a male 9 pin D connector (DTE)</p> <p>The BL-830 has a female 9 pin D connector (DCE)</p> <p>DTE = Data Terminal Equipment</p> <p>DCE = Data Communication Equipment</p>	 <p>male</p> <table border="1"> <thead> <tr> <th>Pin</th> <th>Signal</th> <th>Pin</th> <th>Signal</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N/C</td> <td>4</td> <td>DTR - N/C</td> <td>7</td> <td>RTS</td> </tr> <tr> <td>2</td> <td>RxD</td> <td>5</td> <td>Ground</td> <td>8</td> <td>CTS</td> </tr> <tr> <td>3</td> <td>TxD</td> <td>6</td> <td>DSR - N/C</td> <td>9</td> <td>N/C</td> </tr> </tbody> </table> <p>female</p> <table border="1"> <thead> <tr> <th>Pin</th> <th>Signal</th> <th>Pin</th> <th>Signal</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N/C</td> <td>4</td> <td>DSR - N/C</td> <td>7</td> <td>CTS</td> </tr> <tr> <td>2</td> <td>TxD</td> <td>5</td> <td>Ground</td> <td>8</td> <td>RTS</td> </tr> <tr> <td>3</td> <td>RxD</td> <td>6</td> <td>DTR - N/C</td> <td>9</td> <td>N/C</td> </tr> </tbody> </table>	Pin	Signal	Pin	Signal	Pin	Signal	1	N/C	4	DTR - N/C	7	RTS	2	RxD	5	Ground	8	CTS	3	TxD	6	DSR - N/C	9	N/C	Pin	Signal	Pin	Signal	Pin	Signal	1	N/C	4	DSR - N/C	7	CTS	2	TxD	5	Ground	8	RTS	3	RxD	6	DTR - N/C	9	N/C
Pin	Signal	Pin	Signal	Pin	Signal																																													
1	N/C	4	DTR - N/C	7	RTS																																													
2	RxD	5	Ground	8	CTS																																													
3	TxD	6	DSR - N/C	9	N/C																																													
Pin	Signal	Pin	Signal	Pin	Signal																																													
1	N/C	4	DSR - N/C	7	CTS																																													
2	TxD	5	Ground	8	RTS																																													
3	RxD	6	DTR - N/C	9	N/C																																													
<p>What version of the Bluetooth specification is supported?</p>	<p>BL-521/730</p> <p>BL-819/830</p>	<p>Our products are officially accredited to Bluetooth standard 1.1, Firmware versions 4.3.0 onwards are also Bluetooth 1.2 compliant. Contact Brainboxes for these latest firmwares to upgrade your device.</p>																																																
<p>What Bluetooth profiles are supported by your devices?</p>	<p>BL-521/730</p> <p>BL-819/830</p>	<p>Serial Port Profile (SPP)</p>																																																
<p>Is the headset profile supported?</p>		<p>Our devices do not currently support the headset profile.</p>																																																

Question	Description	Solution
BL-521/730: LED Display	<p>The left most LED is green. This is used to indicate the power status of the converter. When power is applied the LED turns on.</p> <p>The middle LED is orange. This indicates transmitted data activity.</p> <p>The right most LED is also green. It indicates received data activity.</p>	
BL-819/830: LED Display	<p>There are 3 states that the LED indicates.</p> <p>Permanently On: The device has power but no connection is present.</p> <p>Flashing Light: The device has power and there is a Bluetooth connection present.</p> <p>Light comes on briefly during powering up, but is otherwise permanently off: The device is stuck in Upgrade Mode.</p>	<p>Attempt to upgrade device but only change RTS/CTS to complete upgrade wizard.</p>

Question	Description	Solution
<p>I am having trouble connecting to my Bluetooth Nokia phone</p>		<p>Please ensure that the Nokia phone has at least firmware 5.5 on it. Early versions of the Nokia firmware were only designed to work with Nokia Bluetooth devices and so can cause problems.</p> <p>Also ensure that the latest version of Nokia PC Suite for your phone is in use.</p> <p>To find the firmware version currently installed on your phone, please see the phone's documentation. For Nokia 6310's the code is</p> <p>*#0000#</p> <p>Though this may not be universal for all Nokia phones</p>
<p>Where can I find more information on my BL-730 RS232 Bluetooth module?</p>		<p>The following document has been created for integrators of the BL-730 into their own custom Bluetooth devices:</p> <p>BL-730 Information</p> <p>The BL-730 datasheet may also be useful:</p> <p>BL-730 Datasheet</p> <p>To configure the communication or Bluetooth settings of the BL-730, please see the BL-521 webpage:</p> <p>BL-521 Information</p>

Question	Description	Solution
How do I upgrade firmware on my BL-521/730?		See the above section on how to upgrade firmware
Where are the drivers for my BL-521/730/819 & 830?		<p>You do not need to install drivers for these devices. All the necessary software is on the hardware itself.</p>
What Baud rates will your Bluetooth products work at?		<p>Brain Boxes products will run at the maximum Bluetooth data rate of 1 Mbaud. Please see Bluetooth Baud Rates</p> <p>The effective data throughput is 721kbps once encryption and authentication is taken into account.</p>
Over what distance will a Class 1 device communicate with a Class 2 device?		<p>Communication between 2 devices is governed by the capability of the lower power device.</p> <p>Class 1 devices have a maximum output power of 100mW / 20dBm and an possible range of up to 100m in ideal conditions.</p> <p>Class 2 devices have a maximum output power of 2.5mW / 4dBm and an expected of range of up to 20m</p> <p>Class 3 devices have a maximum output power of 1mW / 0dBm and an expected of range of up to 10m</p> <p>The expected ranges assume an ideal clean radio environment</p>

Question	Description	Solution
<p>What is the difference between BCSP and H4?</p>		<p>If you have a BCSP device and require a H4 card (or vice versa), please contact sales@brainboxes.com as we have H4 versions of all our Bluetooth products (with the exception of BL-521, which is in neither mode)</p> <p>H4 is the standard way of transmitting Bluetooth data over a UART as defined in the Bluetooth specifications. The majority of software stacks from independent vendors will communicate with our products in H4 mode without any additional modification to the stack.</p> <p>BCSP is a proprietary CSR protocol (more details below), thus for a software stack to communicate with our products in BCSP mode, it must have a BCSP module written for it - either by the vendor, or by the user.</p> <p>To support flexible partitioning of software between the host and the Bluetooth subsystem, and to enhance the speed of product design, CSR offers a multi-protocol communications link known as BlueCore Serial Protocol (BCSP). BCSP provides a more sophisticated option than currently defined Bluetooth serial protocols: H4/UART or H3/RS232.</p> <p>(CSR does not support H3/RS232 because of its high host memory and processing requirements.)</p> <p>BCSP adds error checking and retransmission to accommodate any dropped data during 'wake-up', and flow control for several logical channels, while simultaneously reducing the processing overhead. It allows developers to link at HCI, L2CAP, RFCOMM, or SDP layers, providing flexibility for companies that have already begun software development.</p>

Question	Description	Solution
What is the maximum distance your Bluetooth devices will cover?		Specifying distances for Bluetooth devices is not prudent, as distances achieved depend very much on the environment. However, in tests at Brain Boxes labs we have achieved distances of over 200m with line of sight and 30-35m in a typical office environment. This is for data transfer, not voice.
What is the temperature and humidity range for BL-521 and BL-730?		Operational Temperature: 0oC to +40oC Humidity: 20% to 75% non-condensing

3. Further Help

If you have been unable to find the answer to what you are looking for, please visit the Support section of our website www.brainboxes.com for latest information (FAQs, Manuals, Latest Drivers).

Version History

Version	Date	Author	Checked By	Comments
1.0	08/09/05	Dominic Bradley		