Serial RS232 Bluetooth Adapter

Datasheet & Quick Reference for S2B2232I and S2B2232E

Bluetooth RS232 Adapter

with internal chip antenna or external di-pole antenna

S2B2232I   S2B2232E

S2B2232I / S2B2232E Package Contents:

- RS-232 adapter x 1

- User manual x 1

- USB Cable x 1

- Di-pole antenna (S2B2232E only)

SPECIFICATIONS	
Part number	S2B2232I (with internal chip antenna) S2B2232E (with external di-pole antenna)
Operating systems	Windows 11, Windows 10, Windows 8.1, Windows 8, Windows 7, Vista, XP, 2000, ME, 98, Linux, Mac, Android
Interface type	RS232
Chipset	CSR BlueCore4 model BC417
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600bps
Data bits	7 or 8
Stop bits	1 or 2
Parity	None, odd, even
Data buffer size	4Kb
Operating distance	Up to 330 feet (100 meters) in open space
LED lights	Power, Status, TX, RX
Bluetooth stack	Serial Port Profile (SPP)

PIN	PIN code available for pairing
Connection type	Point-to-point
Flow control	CTS/RTS
DEC/DTE	Manual switch
Parameters configurable by	• Over Bluetooth (with serial terminal software) • Over serial port (with serial terminal software)
RS232 Signals	TX, RX, CTS, RTS, GND
Echo	Configurable by software (on/off)
NMEA 183 compatible	Yes
Works with Cisco products	Yes, routers and switches (tested with Cisco Catalyst 3560)
Works with Windows 2008/20012 Server?	No, Windows Server does not have built-in Bluetooth drivers
Can pair while serial interface receives data	Yes, limited
Full duplex RS232	Yes, can send and receive simultaneously both when connected over Bluetooth and when used in pairs.
Works with iPad/iPod?	No, it will not work with iPads/iPods due to the restrictions Apple put on their Bluetooth chipset, however it does work with most other Bluetooth enabled smartphones, tablets and devices
Number of slaves per master	7
Parameter configuration	Through the serial port or over Bluetooth
Serial port	1-port female D-sub 9-pin
Bluetooth standard	V2.1 Class 1
Frequency range	2.4GHz – 2.4835 GHz ISM Band
Hopping	1.600/sec, 1MHz channel space
Modulation	GFSK-1, DQPSK-2, 8-DPSK-3 Mbps
Tx power	Max. 18dBm (class 1)
Rx sensivity	-86 dBm typical
Antenna	S2B2232I: Internal chip antenna S2B2232E: 2dBi di-pole, Reverse Polarity SMA male (inside threads / center receptacle)
Antenna connector (on adapter)	Reverse Polarity SMA female (outside threads / center pin)
Power options	• Mini USB cable (5VDC) • DB9 connector Pin 9 (5.0VDC, 1.0A) • Screw terminal connector (5.0 – 40VDC)
Current consumption	Max 100mA
Operating temp.	-13°F to 185°F (-25°C to 85°C)
Dimensions	87 x 33 x 16 mm
Certifications	CE, FCC, RoHS
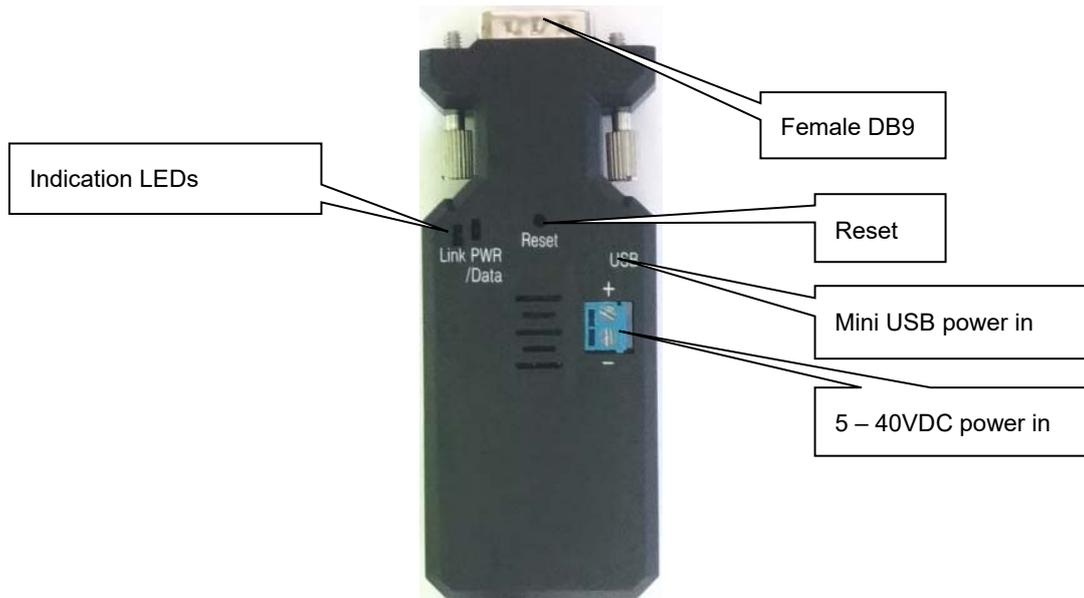
Default factory settings:

- Baud rate: 9600 bps

- Data bit: 8

- Parity: none

- Stop bit: 1

- Flow control: none

- Mode: Slave

- CTS/RTS: disabled

- Device name: Serial Adapter

- Bluetooth PIN code: "1234"

- Configuration mode: by DIP switches

- All DIP switches set to "000000000"

All settings can be configured using any terminal software such as TeraTerm, Putty or Hyper Terminal. Only some settings can be configured by DIP switches. Please see the 'Setup Guide' and below parameter table for details.

Reset Button:

- Short press: The adapter disconnects and then reconnects a wireless link

- Long press (more than 3 sec.): Restores factory settings

LED Status

Status	Description
Power LED solid on	Power ON
Link LED solid on	Bluetooth linked
Link Led flashing	Bluetooth not linked

▲ DCE

▼ DTE
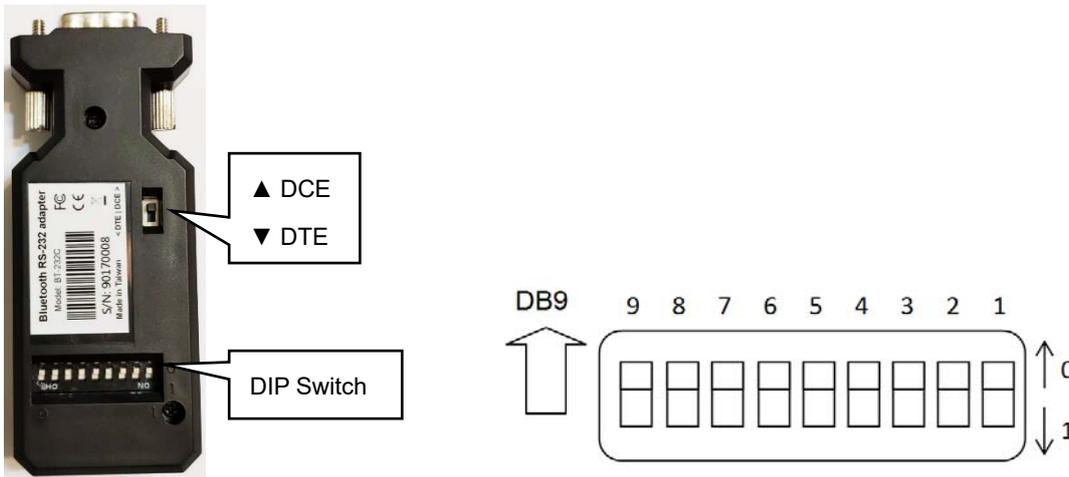
DIP Switch

DIP switch settings

Setup	CTS/RTS	Stop Bit	Parity	Role	Baud Rate
9	8	7	6-5	4	3-2-1
0: DIP Switch	**0: Disable**	**0: 1**	**00: None**	**0:Slave**	110:2400
1: AT Command	1: Enable	1: 2	01: Odd	1:Master	111:4800
			10: Odd		**000:9600**
			11: Even		001:19200
					010:38400
					011:57600
					100:115200
					101:230400

DB9 Female connector, pin configuration

Pin	Signal	DTE Direction	DCE Direction	Description
1	CD	Input	Output	Not connected
2	TxD	Output	Input	Transmitted data
3	RxD	Input	Output	Received data
4	DSR	Input	Output	Not connected
5	GND	N/A	N/A	Signal ground (and power GND if powered by pin 9)
6	DTR	Output	Input	Not connected
7	CTS	Input	Output	Clear to send
8	RTS	Output	Input	Request to send (Default)
9	Vcc	Input	Input	Power supply (5 VDC, 1.0A)

Parameters

The parameters can be configured via the DB9 RS232 serial port or over Bluetooth. The terminal software TeraTerm or Putty can be downloaded for free from www.usconverters.com is recommended for configuring the parameters. Please see the 'Setup Guide' for details.

Note 2: Commands cannot be received by the adapters if they are paired/linked, only when the adapter is in command mode.

Command	Value	Description
<<<		Change the local adapter from "Data mode" to "Command/configuration mode". A minimum of 500ms data silence must appear before the command is entered and minimum 1500ms data silence after the command is entered. The time interval between each entered characters should be: [500ms] "<" [500ms] "<" [500ms] "<" [1500ms]
<<<=	?	Inquire the setting status of the "<<<" command.
(Default)	Y	Enable the "<<<" command
	N	Disable the "<<<" command
>>>		Change the remote adapter from "Data mode" to "Command/configuration mode". A minimum of 500ms data silence must appear before the command is entered and a minimum of 2000ms data silence after the command is entered. The time interval between each entered characters should be: [1 sec] ">" [1 sec] ">" [1 sec] ">" [2 sec]
>>>=	?	Inquire the setting status of the ">>>" command.
(Default)	Y	Enable the ">>>" command
	N	Disable the ">>>" command
ADDRESS=		This command is used to display the Bluetooth address of the local adapter.
	?	Inquire the Bluetooth address of the local adapter.
AT		Checks the connection status between control terminal and the RS-232 adapter. Response: "OK" when the connection is ok. "ERROR" when the connection is unsuccessful.
AUTO=		This command is used to enable/disable the auto-connection feature. It is available only when the adapter is in Master mode and only when DIP=N. The system will not re-start after changing this parameter.
	Y	Master and Slave will connect automatically.
(Default)	N	Master and Slave will need to be connected manually with the 'CONNECT' command.
	?	Inquire the current setting.
BAUD=		This command is used to specify the baud rate of the COM port. The command will need 200 ms delay.
	1200	1200 bps
	2400	2400 bps
	4800	4800 bps
Default	9600	9600 bps
	19200	19200 bps
	38400	38400 bps
	57600	57600 bps
	115200	115200 bps
	230400	230400 bps

	460800	460800 bps
	921600	921600 bps
	R	Restore the default settings. (Baud rate = 9600 bps)
	?	Inquire the current baud rate.
CONNECT=		This command is used to establish a connection manually. It is available only when the adapter is in the Master role.
	DEVICE	Connect the adapter to a specified Bluetooth device manually. It is available only when "DEVICE=xxxxxxxxxxxx" is executed.
	1~8	Connect the adapter to a Bluetooth device in the neighborhood found through "SEARCH=?"
	xxxxxxxxxxxx	Connect the remote adapter by typing the MAC address directly without searching.
	?	Display the MAC address of the latest paired device.
	Y	Recover the latest connection in the command mode.
	N	Disconnect the two adapters in the command mode
	P	Connect the previous connected adapter.
DEFAULT=		This command is used to restore the default settings and originate a warm start.
	Y	Restore the default settings (e.g. 9600 bps). The command will re-start the system for 1 second.
DEVICE=		For security purpose, this command is used to specify a unique remote Bluetooth serial adapter to be connected. In the Master mode, the adapter pairs and connects with the designated remote slave address. If the adapter is in the Slave mode, this command is a filter condition to accept the inquiry of the Master device. Notice: The DEVICE command only works with the CONNECT command to manually connect two adapters; it does not work in auto mode.
	xxxxxxxxxxxx	"xxxxxxxxxxxx" is a string of 12 hexadecimal digits.
	R	Restore the status in which the adapter can connect with any remote address.
	?	Inquiry the designated address that can be paired and connected.
DISCOVER=		This command is used to specify whether the adapter can be discovered or connected by remote devices. This command is available only when the adapter is in Slave mode.
	N	The adapter enters the discoverable mode. If a pair has been made, the original connection can be resumed. But other remote master device cannot discover this adapter.
(Default)	Y	The adapter enters the discoverable mode.
	?	Inquire the current setting.
ECHO=		This command is used to specify whether the adapter echoes characters received from the UART back to the DTE/DCE.
	N	Command characters received from the UART are not echoed back to the DTE/DCE.
(Default)	Y	Command characters received from the UART are echoed back to the DTE/DCE.
	?	Inquire the current setting.
FLOW=		This command enable or disable flow control signals (CTS/RTS) of the UART port. Note, the setting is not affected by DEFAULT. The command will need 1 second delay.
(Default)	N	Disable flow control.
	Y	Enable flow control.

	?	Inquire the current setting
NAME=		This command is used to specify a name for the adapter. You can specify a friendly name using 0 to 9, A to Z, a to z, space and –, which are all valid characters. Note that "first space or -, last space or – isn't permitted". The default name is "Serial Adapter".
(Default)	Serial Adapter	Default device name
	xx….xx	"xx….xx" is a character string with the length from 2 to 30.
	R	Restore the default settings name="Serial Adapter".
	?	Inquire the name of the local adapter.
ONE=		The master will link with one paired or any nearby slave automatically
(Default)	N	The master will link with any nearby slave automatically.
	Y	The master will auto link with the pre-paired slave only. The adapter will not connect with other slaves if the pre-paired slave is not online. Multiple pairs within the same space is supported.
	?	Inquire the current setting
PARITY=		This command is used to specify parity bit setting of COM port. The command will need 200 ms delay.
(Default)	N	None parity bit
	O	Odd parity
	E	Even parity
	?	Inquire the current setting.
PIN=		This command is used to specify a PIN. The default PIN is "1234". Paired adapters should have a same PIN. The length must be 4 – 16 alphanumeric characters. Notice: SSP (secure simple pairing) is supported which means that the master will not need the pin code to link. Notice: this function currently only works with Windows versions prior to Windows 8.1
(Default)	1234	
	xx….xx	"xx….xx" is a 4 - 16 digit string of alphanumeric characters (in capital or lower case)
	N	Cancel authentication by PIN.
	R	Restore the default settings PIN="1234".
	?	Inquire the current PIN.
PROMPT=		This command is used to decide whether status messages are prompted when Setup commands are executed. The status messages are: OK/ERROR for command execution, or CONNECT/DISCONNECT/Try Connect Device for connection status.
(Default)	Y	Prompt result messages.
	N	Not prompt result messages.
	?	Inquire the current setting.
RECONNECT=		The command is used to re-connect the lost link for the Master adapter.
	?	Inquire the current setting.
(Default)	Y	Re-connect is disable
	N	Re-connect is Enable
ROLE=		This command is used to specify whether the adapter is in the master or slave mode. If the device mode is changed, the adapter will reboot and all paired addresses will be cleared. The command is available when the adapter is in DIP=N status. The command will need 1 second delay.
	M	Set the adapter to the master mode.
(Default)	S	Set the adapter to the slave mode.

	?	Inquire the current mode of the adapter.
		1.
SEARCH=		This command is used to search for any Bluetooth device in the neighborhood within one minute. If any device is found, its name and its 12-digit-address will be listed. The search ends with a message "Inquiry ends. xx device(s) found." This command is available only when the adapter is in the master role by manual.
	?	Inquire Bluetooth devices in the neighborhood, listing 8 devices the maximum
STATUS=		Inquire all the current setting of the adapter.
	T	Inquire the inner temperature of the IC in centigrade
	?	Display the current setting of the adapter
STOP=		This command is used to specify one or two stop bits of COM port. The command will need 200ms delay.
(Default)	1	One stop bit.
	2	Two stop bits.
	?	Inquire the current setting.
VERSION=		This command is used to inquiry the firmware version.
	?	Inquire the version codes.

Some commands are unavailable under certain conditions:

Federal Communications Commission (FCC) Statement

RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correcting the interference by one or more of the following measures:
    - Reorient the receiving antenna.
    - Increase the separation between the equipment and receiver.
    - Connect the equipment into and outlet on a circuit different from that to which the receiver is connected.
    - Consult the dealer or an experienced radio/TV technician for help.
    -
Warning: A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.
You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

The information contained in this document is subject to change without notice.

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