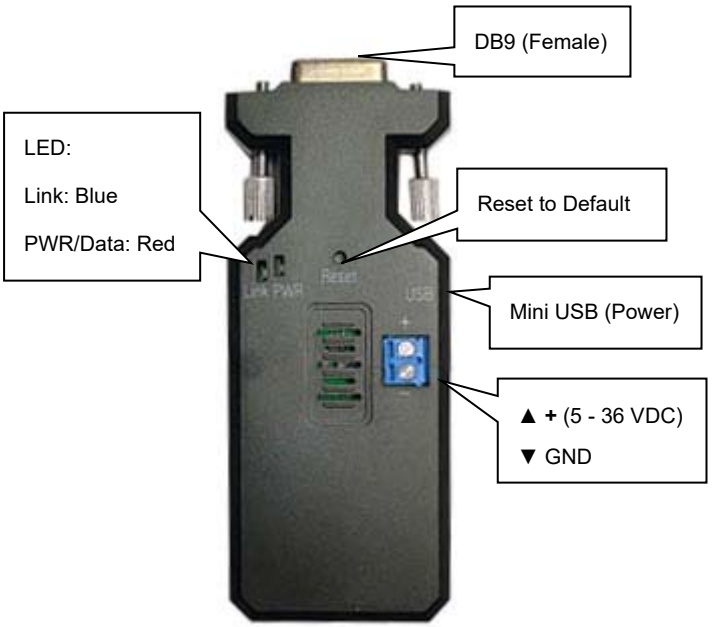
Serial RS232 Bluetooth v2.1 Adapter

Datasheet & Quick Reference for S2B2232FIV2 / S2B2232FEV2

Firmware V8.0.0 and up

S2B2232FIV2
Internal chip antenna

S2B2232FEV2
External di-pole antenna



Package Contents:

- RS-232 adapter x 1
- User manual x 1
- USB Cable x 1
- Di-pole antenna (S2B2232FEV2 only)

SPECIFICATIONS	
Part number	S2B2232FIV2 (internal chip antenna) S2B2232FEV2 (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	ESP32-D0WDQ6-V3 with External 4M flash
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400 bps
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
Parity	None, odd, even
Data buffer size	RX buffer: 2048 bytes TX buffer: 8192 bytes Queue buffer size: 30 bytes
Operating distance	Up to 330 feet (100 meters) in open space
LED lights	Power, Link status
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 serial port (with AT commands/terminal software) • Over BLE Bluetooth using iOS / Android app (firmware V7.14-17 and V7.28 or higher)
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
Serial port	1-port female D-sub 9-pin
Bluetooth version	V2.1 Class 1 (for serial port communication) BLE V4.2 (for parameter configuration)
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
	S2B2232FIV2: Internal dipole

Antenna	S2B2232FEV2: External 2dBi di-pole, Reverse Polarity SMA male (inside threads / center receptacle)
Antenna connector on adapter (S2B2232FEV2)	Reverse Polarity SMA female (outside threads / center pin)
Power options	• Mini USB cable (5VDC) • DB9 connector Pin 9 (5 - 36VDC) • Screw terminals (5 - 36VDC)
Current consumption	Max 100mA
Operating temp.	-13°F to 185°F (-25°C to 85°C)
Dimensions	89 x 39 x 17.5 mm
Adapter weight	34g
Certifications	CE, FCC, RoHS

Default factory settings:

- Baud rate: 9600 bps
- Data bit: 8
- Parity: none
- Stop bit: 1
- Flow control: none
- Mode: Slave / Peripheral
- Device name: Serial Adapter
- Bluetooth PIN code: ‘disabled’ (Windows may require 0000 to pair)

These settings can be configured through the serial port using any terminal software such as TeraTerm, Putty or Hyper Terminal. Please see the 'Setup Guide' and below parameter table for details.

Reset Button:
Press and hold the reset button using a paper clip or similar for more than 5 seconds and the adapter will reset and reboot to factory defaults.

DTE/DCE switch
Use the slide switch to change between DTE and DCE. (Swapping TX / RX and CTS / RTS).

Power
The adapter can be powered by 5 – 36VDC via mini USB, pin 9 in the DB9 connector or the screw terminals. **ONLY POWER THE ADAPTER BY ONE OF THESE OPTIONS, OTHERWISE THE ADAPTER MAY GET DAMAGED.**

LED Status

Status	Description
Red power LED on	Power is ON
Blue Link LED fast flashing (2 blink/sec)	Adapter in slave mode. Bluetooth ready.
Blue Link LED slow flashing (1 blink/sec)	Adapter in master mode (waiting for slave to connect)
Blue Link LED steady on	Master mode: Slave and Master is linked Slave mode: Bluetooth linked **and** COM port open (when paired with a PC)
Both blue and red LEDs off	Firmware upgrade mode

Parameters

The parameters can be configured via the DB9 RS232 serial port using a standard terminal program such as Putty or Tera Term, or over BLE Bluetooth using an app. Please see the 'Setup Guide' for details.

Note: Commands cannot be received by the adapter if it is paired/linked.

Command	Value	Description
?		List available commands
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.
ADD=	Xxxxxxxxxxx (3c617ecbe97e)	Add the un-paired MAC. (Search Result number or Mac Address)
ADDRESS=	?	This command is used to display the MAC address of the adapter.
AUTO=		This command is used to enable/disable the auto-connection feature. It is available only when the adapter is in Master mode.
	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
	?	Inquire the current baud rate.
BIT=		Data bit
	5	5 data bits
	6	6 data bits
	7	7 data bits
(Default)	8	8 data bits
	?	Inquire the data bit setting.
CONNECT=		This command is used to establish a connection manually. It is available only when the adapter is in the Master role. .(Search Result No. or MAC or DEVICE or Latest Connect)
	DEVICE[1],	Connect the adapter to a Bluetooth device in the neighborhood found through “SEARCH=?”
	1,3C61A860BA72	Connect the remote adapter by typing the MAC address directly without searching.
	R	Latest Connect
	?	Display the MAC address of the latest paired device.
DEFAULT=	Y	This command is used to restore the default settings and originate a warm start.
DEVICE=	Xxxxxxxxxx (3C61A860BA72)	Pre-set the adapters mac. address for first connection when start. This command is used with the "connect=device".

	?	Inquire current DEVICE setting
DEL=	1 - 10	The command will delete the master or slave device list (1~10)
ECHO=		Specifies if characters are Echoed back from the UART
(Default)	Y	
	N	
	?	Inquire the current setting
FLOW=		This command enables or disables 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
HIDE=		This command is used to hide the Bluetooth link broadcast which will avoid to be searched by other (not paired) master devices
	Y	
(Default)	N	
	?	Inquire the current setting
MAC=	Xxxxxxxxxxxx 3C61A860BA72	The MAC address can be customized by the user
	?	Inquire the current setting
NAME=		This command is used to specify a device name for the adapter. 5~32 bytes ASCII code
	xxxxxxxxxx	
(Default)	Serial Adapter	Default name
	?	Inquire the current setting
ONE= (FW lower than v8.0.0 only)		The command will define the pre-paired master or slave (Default=N)
	Y	
	N	
	?	
LINK= (FW v8.0.0 and higher only)	0 - 10	The command will link the pre-paired master or slave (Default=0)
LIST=	?	List all the paired master or slave MAC address and device name in the sequence from no. 1 to 10 max.
PARITY=		This command is used to specify parity bit setting of COM port
(Default)	N	None parity bit
	O	Odd parity
	E	Even parity
	?	Inquire the current setting.
PIN= (FW with ‘c’ only)		This command is used to specify the PIN code for pairing. The default is w/o the PIN code.
(Default)	N	
	?	Inquire the current setting.
PROMPT=		Enable / disable messages from the adapter.
(Default)	Y	
	N	
	?	Inquire the current setting.

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.
	M	Set the adapter to the master mode.
(Default)	S	Set the adapter to the slave mode.
SEARCH=	?	Inquire the current mode of the adapter.
		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.
STATUS=	?	Inquire all the current setting of the adapter.
STOP=		Sets the stop bit
(Default)	1	Stop bit
	1.5	Stop bit
	2	Stop bit
	?	Inquire the current setting.
VERSION=	?	This command is used to inquiry the firmware version

Pin configuration

Pin	Signal	DTE Direction	DCE Direction	Description
1	CD	Input	Output	Not connected
2	TxD	Output	Input	Transmit
3	RxD	Input	Output	Receive
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 - 36VDC)

Parameter configuration.

The adapter has built-in BLE Bluetooth v4.2 which can be used for configuring the parameters. It cannot be used for communicating with a serial device, it can ONLY be used to configure the parameters.

App configuration is available for firmware versions V7.14-17 and V7.28 or higher.

iOS

https://apps.apple.com/us/app/id6449416841

Android

https://play.google.com/store/apps/details?id=com.uconnect.sppsetup

1. Download and install the app on your phone/device.
2. Open the app.
3. Connect the adapter to a power source and turn it on.
4. Press and hold the reset button on the adapter for about 6 seconds.

   The app should now automatically scan and find the adapter.

   Select “Setup Mode”’. You can now select which parameter you want to configure.

Notice regarding v7.28 firmware.

To configure the settings:

1. Press and hold the reset button for about 6 seconds. The adapter will go into 'configuration mode'.

2. Open the app and search for the adapter.

3. Configure the needed settings and click the Submit button, and then the Disconnect button when you are finished configuring.

The new settings are now saved in the adapter.

To re-configure settings, follow above procedure again. Notice that the adapter will not show up in the app unless the reset button has been pressed first.

The adapter will show up as "Serial Adapter" under Windows (Bluetooth v.2.1).

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.
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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.

FCC ID: XJ8-BT-232B CCAB09LP2610T2 CE 1177