Bluetooth RS-232 Serial Adapter

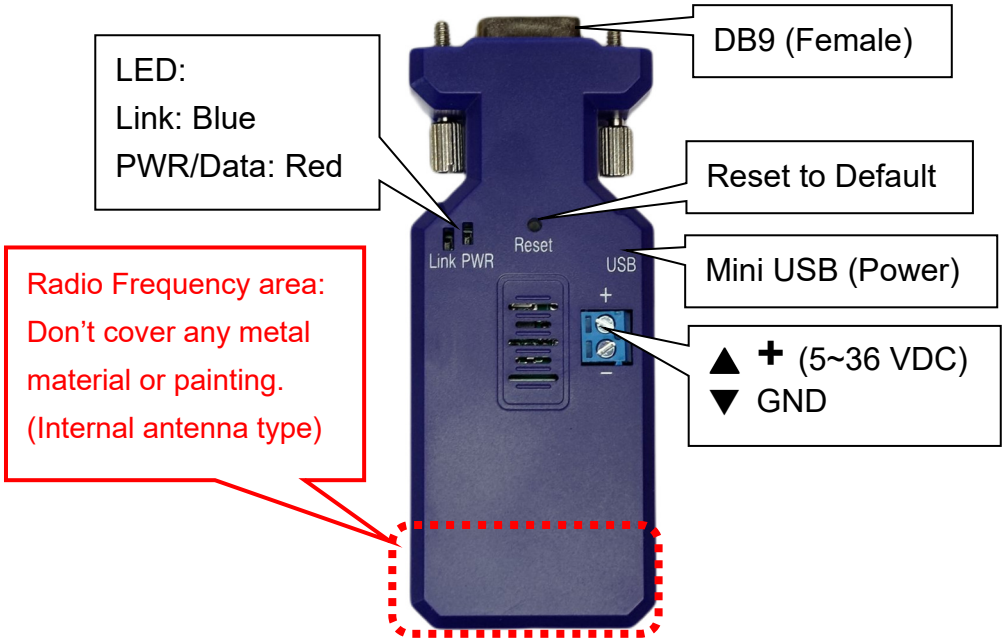
Model: RF-B-232-SB-INT-ND

1. Package content:

Bluetooth RS-232 adapter	Package Contents:
 White Box Dimension: 11 x 6 x 5 (cm) Total Package Weight: 95 g 	● Dual BLE RS-232 adapter x 1 ● A4 User manual x 1 ● Mini USB Cable x 1 

2. Profile:

2.1 Top view:



LED Status	Description
Red LED solid on	Power On
Blue LED solid on	Bluetooth Link
Blue LED flash	Bluetooth not Link
Both LED off	DFU mode

2.2 Rear Side:



3. Power supply:

3.1 Voltage: 5~36 VDC, **Don't exceed the limit.**

3.2 There're 3 ways to power the adapter: Mini USB, 2P Terminal Block (Blue) and pin9 of DB9, please choose one. **Don't power the adapter by more than one source.**

3.3 The mini USB to type A cable is inside the standard package and for **power input only**.

4. Guide:

4.1 Default value:

- Baud rate: 9,600 bps
- Data bit: 8
- Parity: none
- Stop bit: 1
- Flow control: none
- Device Name: Serial Adapter
- Mode: Default is "Slave" or "Peripheral"

4.2 If the PC not built in the Bluetooth, please source the Bluetooth USB dongle or use the same adapter set as the "master". The built in Bluetooth of NB supports class 2 only, 10 meters. If you need 100 meters range, you will connect two same adapters.

4.3 Slide Switch of "DTE/DCE"

Use the slide switch to swap the "TX/RX" and "CTS/RTS". By slide the switch, you can set the adaptor either as a DTE (towards antenna connector) or a DCE (towards DB9 connector). In most situation, switch to "DTE" if connect with the remote device.

4.4 Slave mode (default): Start the searching from the PC or smartphone and connect it.

4.5 Master mode: , The adapter can be configured the "Master" or "Central" by the command "role=m" or "role=c". The master will be set the command "search=y" to find the Bluetooth slave devices and connect the list no. after searching in the terminal software, please check the "connect=no." command.

4.6 Reset Button: Pressed with a clip or pin into the hole on the top cover. Restore the factory settings by pressing the button over three seconds.

5. Setup Command set (any capital or lowercase combination is available)

Command	Value	Description
?		List all the command set
ADDRESS=?		This command is used to display the Bluetooth address of the local adaptor.
AT		Check the connection status between control terminal and the RS-232 adapter. Response: “OK” when the connection is ok. Response: “ERROR” when the connection is not ok.
AUTO=		This command is used to enable/disable auto-connection feature. It is available only when the adaptor is in the master role. All the slaves with the same pin code will be connected.
	Y	The Master role adapter will connect the latest paired Bluetooth device automatically.
(Default)	N	The user will connect the Bluetooth device manually.
	?	Inquire the current setting.
BAUD=		This command is used to specify the baud rate of 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
	?	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 adaptor is in the master role. Used for SPP mode.
	1~8	Connect the adaptor to a Bluetooth device in the neighborhood found through “SEARCH=?”
	xxxxxxxxxxxx	Connect the remote adapter by type the MAC address directly without searching.
	?	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.
DFU=	Y	Switch to the firmware upgrade procedure, please disconnect the COM port when the adapter reply “OK”. Send the firmware file by the “Accessport” software, please check the link on page 6 section 9.3.
ECHO=		This command is used to specify whether the adaptor echoes characters received from the UART back to the DTE/DCE.

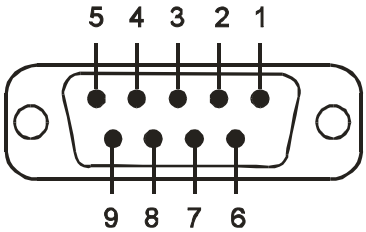
	N	Command characters received from the UART are not echoed back to the DTE/DCE.
(Default)	Y	Command characters received from the UART are echoed back to the DTE/DCE.
	?	Inquire the current setting.
FLOW=		This command enable or disable flow control signals (CTS/RTS) of the UART port. Note, the setting 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
KEY=		The key value will be created by the smart phone or Win10 devices when pairing with the slave adapter. Please type the same 6 numbers shown on the smart phone or Win10 devices within 15 seconds.
(Default)	N	
	Y	
	?	
MAC=		The mac. Address will be customized by the user. The master will connect the 2nd slave with the same mac. address if the 1st slave damaged.
	xxxxxxxxxxxx	The head of the address 0012, 0018, 0019 is available only.
	?	
NAME=		This command is used to specify a name for the adaptor. 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 Adaptor”.
(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 adaptor.
ONE=		The master will link with one paired or any nearby slave automatically. All the slaves with the same pin code will be connected. Once connected, the master will not change the paired slave until reset to default from the slave. The command is available under the command “auto=y”.
(Default)	N	The master will link with any nearby slave automatically.
	Y	The master will link with the paired slave which is linked by the master before automatically.
	?	Inquire the current setting
PARITY=		This command is used to specify parity bit setting of COM port.
(Default)	N	None parity bit
	O	Odd parity
	E	Even parity
	?	
PIN=		This command is used to specify a PIN. The default PIN is (None) and the length is not smaller than 4. The master will connect the slave first

		and check the pin value sent from the slave. The command is available for the S2B2232FE(I)V2 only. The master will connect the slave if the pin value is the same between both.
(Default)	1234	
	xx….xx	“xx….xx” is a 4~16 digit string or English character (in capital or lower case)
	?	Inquire the current PIN.
PROMPT=		The command is used to decide whether result messages are prompted when Setup commands are executed. The result 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.
ROLE=		This command is used to specify whether the adaptor is in the master or slave role. If the device role is changed, the adaptor 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.
	C	Set the adaptor to the central role in BLE mode.
	M	Set the adaptor to the master role in SPP mode.
(Default)	S	Set the adaptor to the slave role for both SPP or BLE mode. One of the SPP or BLE will be turn off after link with the master or central.
	?	Inquire the current role of the adaptor.
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 adaptor is in the master role by manual.
STATUS=		Inquire all the current setting of the adapter.
	?	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.
	1.5	One point five bit
	2	Two stop bits.
	?	Inquire the current setting.
VERSION=?		This command is used to inquiry the firmware version.

Remark: If you need to customize the command, please call.

6. RS232 Interface

6.1 Pin-out: **DB9 connector (Female)**



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	Contact manufacturer to set this
5	GND	N/A	N/A	Signal ground
6	DTR	Output	Input	Contact manufacturer to set this
7	CTS	Input	Output	Clear to send
8	RTS	Output	Input	Request to send (Default)
9	Vcc	Input	Input	Power supply (5VDC, 1.0 A)

7. BLE GATT Service:

7.1 UUID_1800_SERV = ("00001800-0000-1000-8000-00805F9B34FB")

- UUID = 2A00, Device name, Default: BLE232

7.2 UUID_180A_SERV = ("0000180A-0000-1000-8000-00805F9B34FB")

- UUID= 2A26,Firmware version,Format: x.x.x, ASCII/read only
- UUID=2A24,BLE version,Format: x.x, ASCII/read only, Value: 4.2 or 5.0

7.3 UUID_BLE_SERV = ("0003ABCD-0000-1000-8000-00805F9B0131") (Self defined UUID)

- UUID_BLE5DATA = ("00031201-0000-1000-8000-00805f9b0130"),Data from BLE232_TxData(Notification)
- UUID_BLE5SENT = ("00031202-0000-1000-8000-00805f9b0130"),//Data to BLE232_RxData max244bytes/package(write only)
- UUID_BLE5CONF = ("00031203-0000-1000-8000-00805f9b0130"), Configuration, 4bytes, (read/write)

UUID_BLE_Config (4 bytes): 00031203-0000-1000-8000-00805F9B0130

Byte0 (ReadOnly)	Byte1	Byte2	Byte3
Product model	Baud Rate	Data and Stop bit	Port setting
0xAA: RS232 0xAF: RS485/422	0x00: 1200 bps 0x01: 2400 bps 0x02: 4800 bps 0x03: 9600 bps 0x04: 19200 bps 0x05: 38400 bps 0x06: 57600 bps 0x07: 115200 bps 0x08: 230400 bps	Data bit bit 7: 8 bit bit 6: 7 bit bit 5: 6 bit bit 4: 5 bit Stop bit bit 3: 1-bit bit 2: 1.5-bit bit 1: 2-bit bit 0: N/A	bit 0: Parity (0: NONE 1: EVEN) bit 1: Flow control (0: Disabled 1: Enabled) (for RS232 model Only) bit 2: Parity(1:ODD, bit 0 must be 0) bit 3: Port Type (0: RS485 1: RS422) (Available on RS485 model only) bit 4: BLE Role (0: Peripheral 1: Central) (indication Only) bit 5:ControlSet (0: set by APP or command 1: set by 9P switch) (indication Only)

- UUID_BLE5ADDR = ("00031204-0000-1000-8000-00805f9b0130"), Target Peripheral Mac.

Address, 6bytes,(read/write)

- UUID_BLE5NAME = ("00031205-0000-1000-8000-00805f9b0130"), Device name, Max. 15bytes,UTF-8,(read/write)
- UUID_BLE5PIN = ("00031206-0000-1000-8000-00805f9b0130"), Pin code, 6bytes, (read/write)
- UUID_BLE5RBT = ("00031210-0000-1000-8000-00805f9b0130");Reboot, 2bytes, (read/write)

7.4 BLE Central command set: Used to connect BLE peripheral device. Available on ROLE=C.

BLE-NOTIFY=	NOTIFY characteristic's UUID string w/o space or symbol. Case-sensitive.
BLE-RX=	Read characteristic's UUID string w/o space or symbol. Case-sensitive.
BLE-PRISVC=	BLE primary service UUID string w/o space or symbol. Case-sensitive.
BLE-CONNECT=	Mac. address of the BLE peripheral device. EX:00A05152911C, Not Case-sensitive.

EX: Link with BLE peripheral S2B5232E. Please follow the procedures to set the UUID.

ROLE=C

BLE-NOTIFY=00031201000010008000000805F9B0130

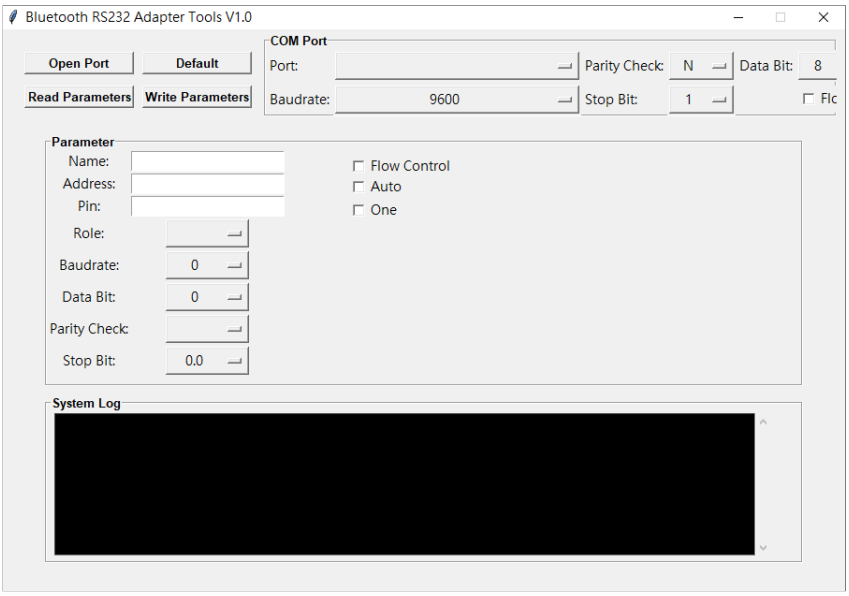
BLE-RX=00031202000010008000000805F9B0130

BLE-PRISVC=0003ABCD00001000800000805F9B0131

BLE-CONNECT=00A05152911C

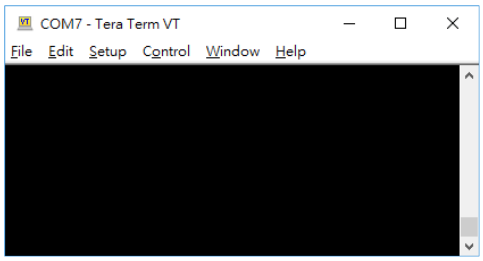
8. Configuration and test:

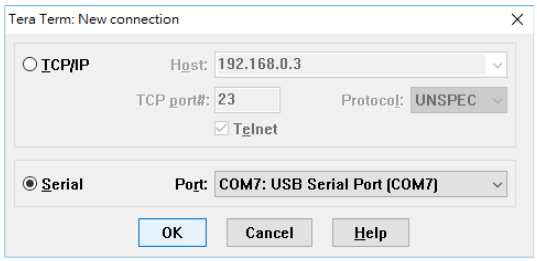
8.1 PC software: Please contact the supplier.



8.2 3rd party Terminal: Download the “Teraterm” software to set the AT command or test the data transmission. ASCII characters only.

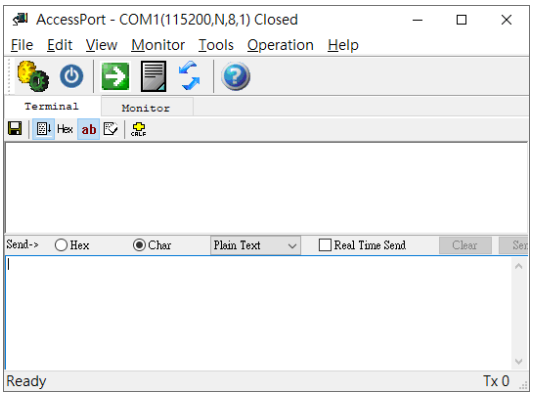
Download link: https://ttssh2.osdn.jp/index.html.en

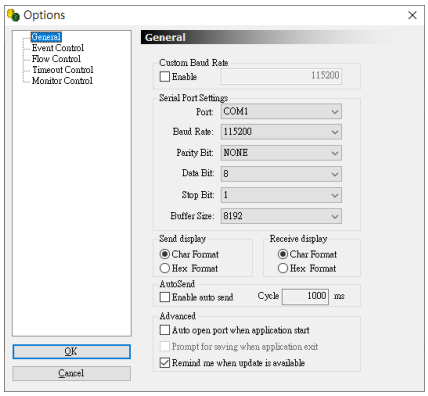




8.3 3rd party Terminal: Download the “Accessport” software to set the AT command or test the data transmission. ASCII or Hex characters is available.

Download link: http://www.sudt.com/en/ap/





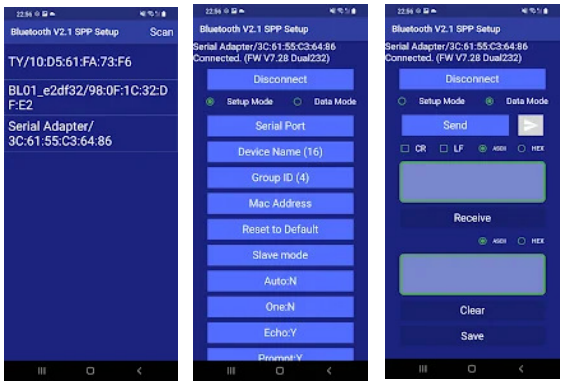
8.4 Smartphone:

8.4.1 Android APP:

For serial port configuration (command mode) and data transmission test (data mode).





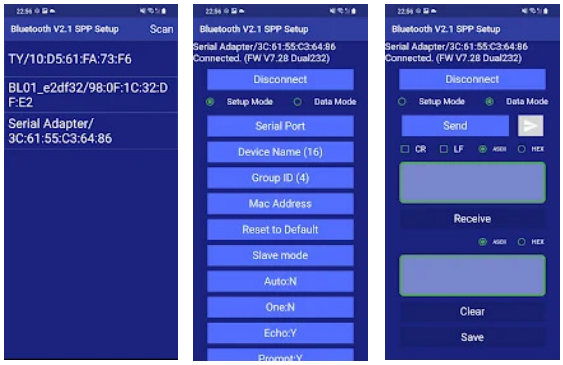


Download: https://play.google.com/store/apps/details?id=com.uconnect.sppsetup

8.4.2 iOS APP: For serial port configuration use in command mode. The data mode is not available.







Download: https://apps.apple.com/us/app/bluetooth-v2-1-spp-setup/id6449416841

FCC Warnning:

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 againstharmful interference in a residential installation. This equipment generates,uses and can radiateradio frequency energy and, if not installed and used in accordance with the instructions, maycause harmful interference to radio communications. However, there is no guarantee thatinterference will not occur in a particular installation. If this equipment does cause harmfulinterference to radio or television reception, which can be determined by turning the equipmentoff and on, the user is encouraged to try to correct the interference by one or more of thefollowing measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.