

Serial Bluetooth Smart® Adapter - RS232, Low Energy 4.2 BLE Datasheet and Quick Reference for USBLE232D

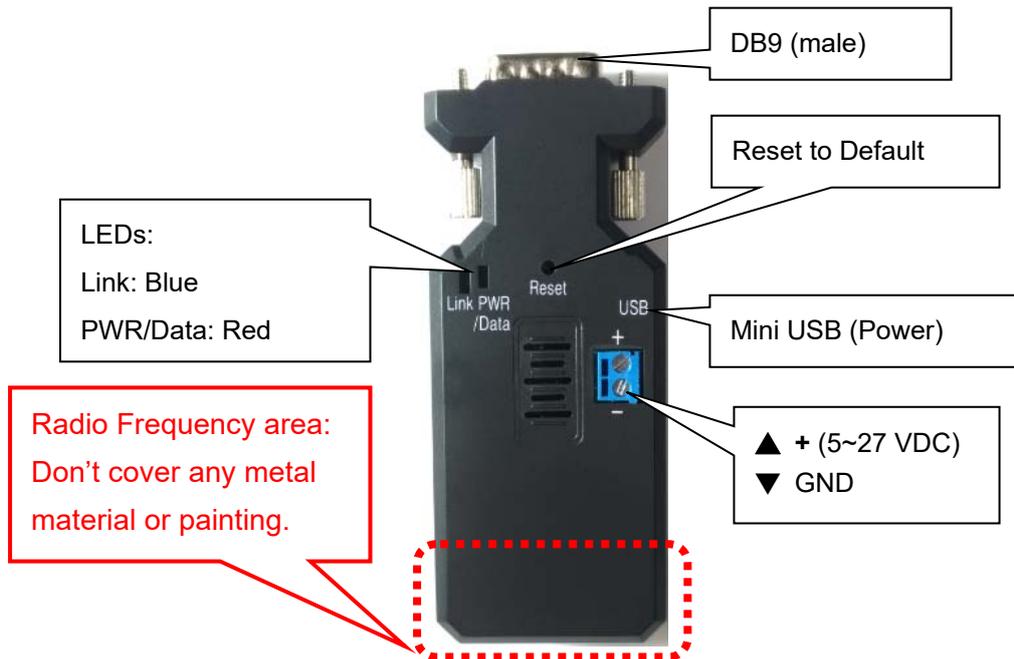


Package content:

BLE RS-232 adapter x 1

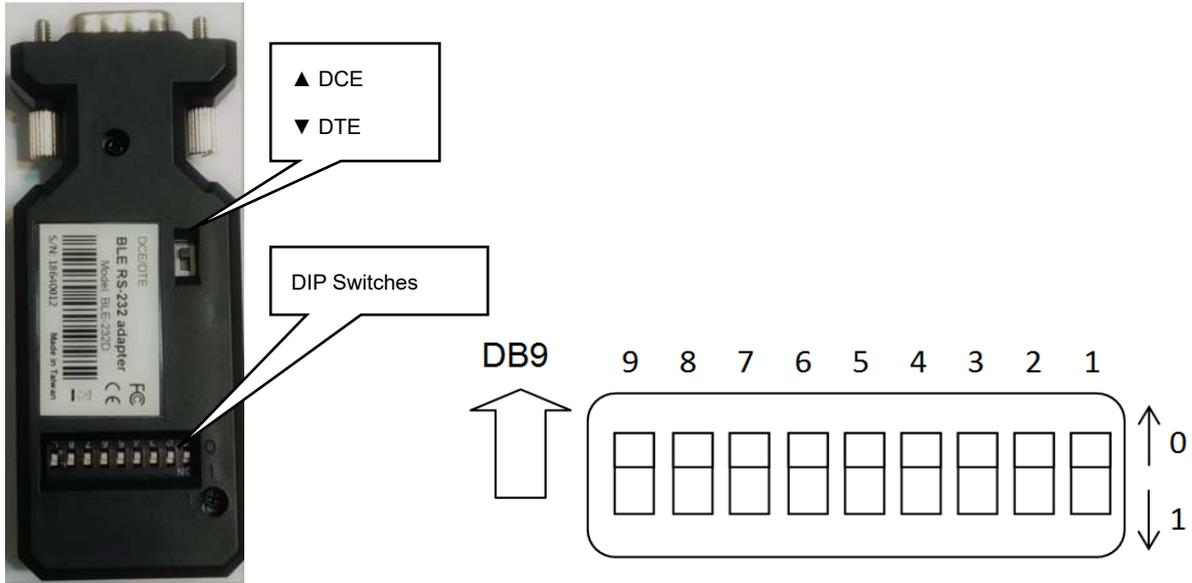
User manual x 1

Mini USB Cable x 1



SPECIFICATIONS	
Part number	USBLE232D
Operating systems	iOS 5 and later, Windows Phone 8.1, Windows 8 and later, Android 4.3 and later, BlackBerry 10, Linux 3.4 and later through BlueZ 5.0.
Processor	Cypress CY8C4128LQI-BL553
Data payload	251 bytes
Interface type	RS232
Mode	Central or Peripheral (Master or Slave)
Works with iPad/iPod?	Yes
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600
Parity	None, even, odd
Stop bits	1, 1.5, 2
Data bits	7, 8
Flow control	None, CTS/RTS
LED lights	TX, RX, Bluetooth and Power
DEC/DTE	Manual switch
Parameters configurable by	<ul style="list-style-type: none"> - Over the air by iOS and Android app - Via COM port by AT commands - DIP switches
RS232 Signals	TX, RX, CTS, RTS, GND
Serial port	1-port male D-sub 9-pin
Bluetooth version	V4.2
Programming interfaces	GATT / UUID
Frequency range	2.4GHz ISM (2.40000 – 2.4835GHz)
TX Power	Max. 3 dBm
RX Sensitivity	-89 dBm typical
TX current consumption	15.6 mA (radio only, 0 dbm)
Antenna	Internal
Antenna Gain	max. 2 dB
Power supply	Mini USB, screw terminals or DB9 pin 9: 5 - 27VDC
Max comm range	Up to 30m in open space, depending on actual environment
Operating temp.	-13°F to 158°F (-25°C to 70°C)
Dimensions	87mm x 34mm x 18mm mm
Certifications	CE, FCC

Rear Side:



Switch configuration:

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

Default values are in bold red color.

The GATT service / tablet apps and AT commands will support more functions than the DIP switches.

RS232 Interface (male)

Pin	Signal	Description
1	N/A	
2	RX	Received data
3	TX	Transmitted data
4	N/A	
5	GND	Ground
6	N/A	
7	RTS	Request to send (Default)
8	CTS	Clear to send
9	VCC	Power Input (5~27 VDC)

LED Status	Description
Data LED flash	Data transmission
Data LED solid on	No data transmission
Link LED solid on	BLE Link
Link LED flash	No Link
Data & Link LED solid on	DFU/OTA Mode

Power supply:

Voltage: 5 - 27 VDC, **Do NOT exceed 27VDC!**

The adapter can be powered by: Mini USB, screw terminals or pin9 in the DB9 connector.

Do NOT power the adapter by more than two sources.

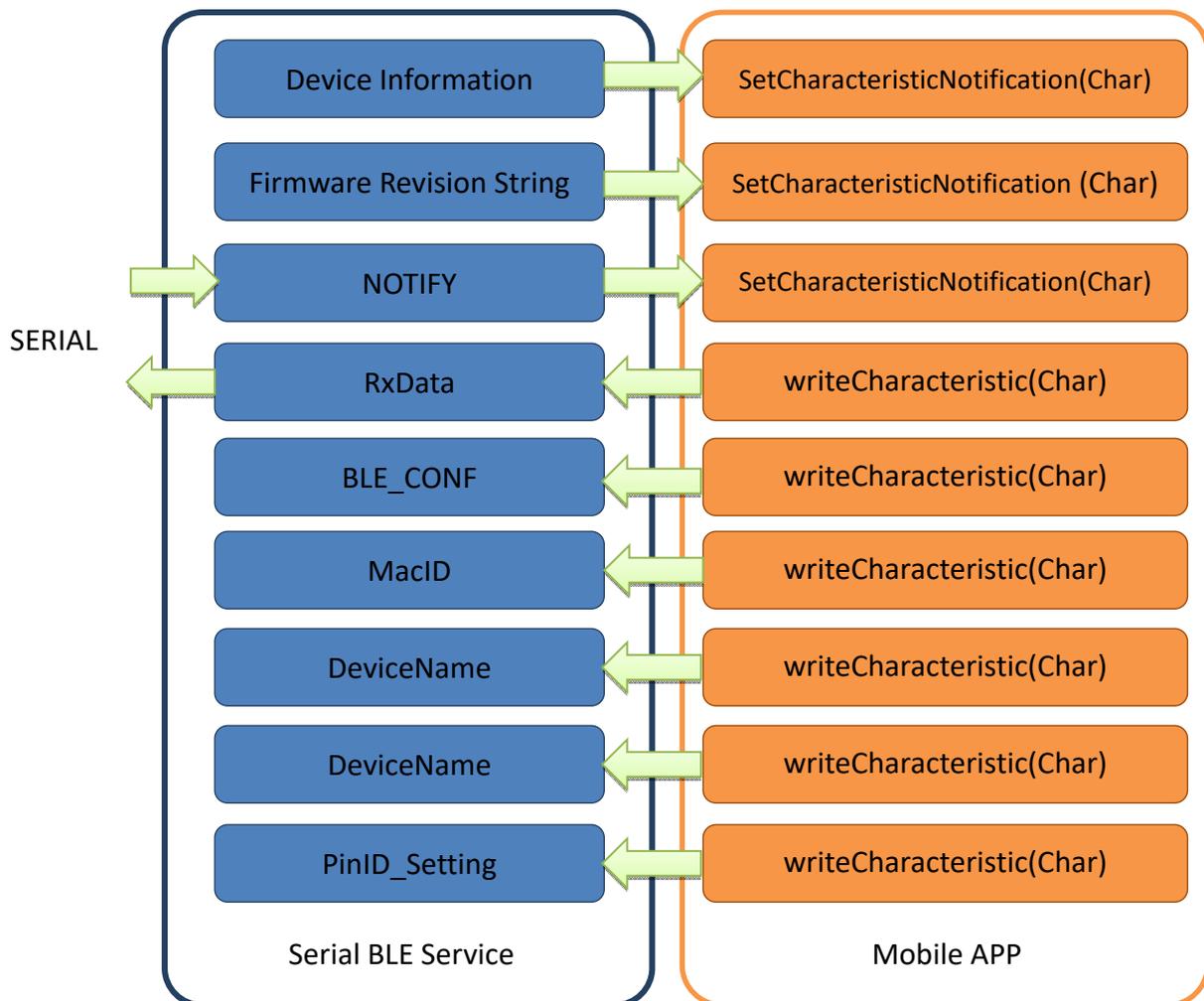
Default values:

- Baud rate: 9600 bps
- Data bit: 8
- Parity: none
- Stop bit: 1
- Flow control: none
- Device Name: USBLE232D
- Pin code: 123456

Reset button:

Press the reset button for about 5 seconds and the adapter will reset to factory settings. A power cycle is recommended after reset.

GATT Service.



Programming Interfaces:

GATT	UUID
UUID_Device Information	0000180A-0000-1000-8000-00805F9B34FB
UUID_Firmware Revision String	00002A26-0000-1000-8000-00805F9B34FB
UUID_NOTIFY (~20 bytes)	00031234-0000-1000-8000-00805F9B0130
UUID_RxData (~20 bytes)	00031234-0000-1000-8000-00805F9B0131
UUID_MacID (6 bytes)	00031234-0000-1000-8000-00805F9B0133
UUID_DeviceName (15 bytes)	00031234-0000-1000-8000-00805F9B0134
UUID_Reboot (1 bytes)	00031234-0000-1000-8000-00805F9B0135
UUID_PinID_Setting (6 bytes)	00031234-0000-1000-8000-00805F9B0136
UUID_BLE_CONF (7 bytes)	00031234-0000-1000-8000-00805F9B0132

Byte0	Byte1	Byte2	Byte3
Data bit	Hwfc	Stop Bit	Parity Bit
7,8	0x01:on 0x00:off	2:1 3:1.5 4:2	0x02 : No Parity 0x01 : Odd Parity 0x00 : Even Parity

Byte4	Byte5	Byte6
Baud Rate	Device Mode	Reset To Default
00:9600 01:19200 02:38400 03:57600 04:115200 05:230400 06:2400 07:4800 08:1200 09 : 460800 10 : 921600	0x01:on 0x00:off	0x01: Reset

Command set via COM port:

Command	Value	Description
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 Central (master) role.
	Y	The Central role adapter will connect the neighboring BLE peripheral adapter

		automatically.
(Default)	N	The command will disable the auto link function.
	?	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
	460800	460800 bps
	921600	921600 bps
	?	Inquire the current baud rate.
BIT=		
	7	7 data bit
	8	8 data bit
	?	Inquire the current data bit
DEFAULT=		This command is used to restore the default settings and originate a warm start.
	Y	Restore the default settings. The command will re-start the system for 1 second.
DFU=		Device Firmware Upgrade via PC software. OTA (Over the air) is available to upgrade the firmware by APP
	Y	
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
NAME=		This command is used to specify a device 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".
(Default)	USBLE232D	Default device name

	xx....xx	“xx....xx” is a character string with the length from 2 to 30.
	R	Restore the default name
	?	Inquire the name of the local adaptor.
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 code. Paired adaptors should have the same PIN.
(Default)	123456	
	xx....xx	“xx....xx” is a 4~16 digit string or English character (in capital or lower case)
	N	Disable authentication by PIN.
	R	Restore the default pin code
	?	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.
(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 central or peripheral role. If the device role is changed, the adaptor will reboot and all paired addresses will be cleared.
	C	Set the adaptor to the central role.
(Default)	P	Set the adaptor to the peripheral role.
	?	Inquire the current role of the adaptor.
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.

Configuring Central and Peripheral: (Similar to Master and Slave roles)

By DIP switches: The central will pair the slave automatically.

- Switch DIP-9 to 0 (Switch)
- Switch DIP-4 to 1 (Master)
- The central will link with the neighboring peripheral automatically. The blue LED will be solid on. The central will link with the paired peripheral next time when powered on.

- Please reset to default and follow above procedure if you want to link with other BLE devices.

By AT command:

- Set "role=c" or "ROLE=C" in one adapter.
- Set "auto=y" or "AUTO=Y" to enable the auto link
- The central will link with the neighboring peripheral automatically. The blue LED will be solid on. The central will link with the paired peripheral next time when powered on.
- Please reset to default and follow above procedure if you want to link with other BLE devices.

By APP setup: (apps can be downloaded from www.usconverters.com, Google Play or Apple Store):

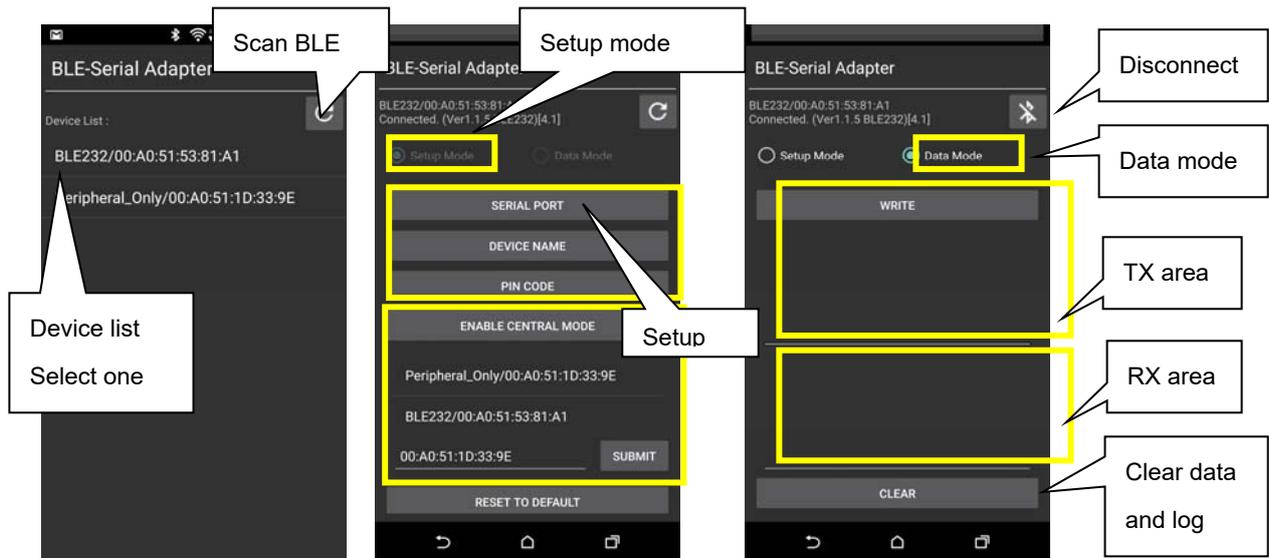
- The APP will search the BLE and select one as the central.
- Then select the other one as the peripheral and link.
- The central will link with the neighboring peripheral automatically. The blue LED will be solid on. The central will link with the paired peripheral on next time when power on.
- Please reset to the default and follow the above procedures if you want to link with other BLE devices.

The APP is used for configuring the parameters and can also be used for data transmission tests.

Android: The Android app can be downloaded from the Google Play Store:

<https://play.google.com/store/apps/details?id=tw.com.uconnect.ble232>

or www.usconverters.com.



Scan and select one.

Connect and configure

Data transmission test.

iOS: The same configuration procedures as Android version. The app for iOS can be downloaded from the Apple Play

Store: <https://itunes.apple.com/us/app/ble-to-serial-terminal/id1238004134?l=zh&ls=1&mt=8> or www.usconverters.com.

App download QR codes, Android and iOS:

