

XC4382 BLE Bluetooth Module

Overview:

The XC4382 BLE Bluetooth Module is based on the HM-10 module and is compatible with 5V power and IO. Apps designed to work with HM-10 modules should work with the XC4382 BLE Bluetooth Module. The module supports configuration via AT commands and communication via a custom serial profile. It is not compatible with the SPP profile as found on XC4510 Bluetooth Modules.

Libraries:

There are no extra libraries needed to operate the Bluetooth Module, the included Serial and SoftSerial libraries can be used.

Connections:

For connections to an Arduino board for controlling the XC4382 BLE Bluetooth Module from the sketch on the Arduino Board:

Arduino	XC4382
TX (eg D1)	RXD
RX (eg D0)	TXD
VCC	5V
GND	GND

To connect the XC4382 BLE Bluetooth Module to communicate directly with a computer (eg for AT command configuration and debugging), use the following connections:

Uno/Mega/Nano with no sketch loaded (ie as transparent serial bridge):

Uno/Mega/Nano	XC4382
D0 (RX)	RXD
D1 (TX)	TXD
VCC	5V
GND	GND

Note that the Leonardo or Lilypad will not work, as D0 and D1 are not connected directly to the onboard USB-Serial converter.

If you are using the Arduino Serial Monitor, the default settings are 9600 Baud, no line ending.

AT Commands

The AT commands can only be used while the module does not have an active Bluetooth connection. If a connection is active, any communications will be sent as data to the remote unit. The AT commands have a one second timeout, so in this case, a terminal program which sends a line at a time (but without line endings) will work better.

Initial default settings are 9600 Baud, passcode of 000000, role is slave.

The following are small subset of the commands, but will be enough to allow basic connections and communications.

Commands:

AT

This is the test command, and the response should simply be 'OK'. This is the first command that should be used if you want to test a connection.

AT+BAUD?

Query Baud rate. Response is **OK+Get:n**

AT+BAUD=n

Set Baud rate. Response is **OK+Set:n**

The value n is chosen from the following table:

n	Baud rate
0	9600
1	19200
2	38400
3	57600
4	115200
5	4800
6	2400
7	1200
8	230400

AT+NAMExxxxxxx

Set device name. Response is **OK+SetName:xxxxxxx**. xxxxxxxx can be up to 12 characters.

AT+PASS?

Get device passcode (PIN code). Response is **OK+Get:nnnnnn**.

AT+PASSnnnnnn

Set device passcode (PIN code). Response is **OK+Set:nnnnnn**. Passcode must be 6 numbers. If you wish to connect to XC4382's, their passcode should be set to the same.

AT+ROLE?

Get device role (slave/master). Response is **OK+Get:n**, where n is 0 for slave and 1 for master.

AT+ROLEn

Set device role (slave/master). Response is **OK+Set:n**, where n is 0 for slave and 1 for master.

AT+ADDR?

Get device address. Response is **OK+ADDR:hhhhhhhhhhh**, where hhhhhhhhhhhh is a 12 nybble hexadecimal MAC address.

The following can only be done from a master (ROLE=1):

AT+DISC?

Scan for Bluetooth units in the area. Response is:

OK+DISCS <scan started

OK+DISn:hhhhhhhhhhhh <unit found, reference n, MAC address hhhhhhhhhhh

OK+DISCE <scan finished

Connection:

After connection occurs, the serial data lines become transparently linked and cannot be used for AT commands. The LED on each module will go from flashing to solid to indicate connection has occurred. A master can only initiate the connection, and can only connect to a slave.

The connection can only be reset by pulling the BRK pin to GND for about a second.

AT+CONhhhhhhhhhhhh

Connect to device with MAC address hhhhhhhhhhh. Device may start receiving data from remote end. Response is AT+CONNE for error, AT+CONNf for fail, AT+CONNA for success.

AT+CONNn

Connect to unit n found by discovery scan (see above). Response should be **OK+CONNn**.

AT+CONNL

Connect to last connected unit. Response should be **OK+CONNL**.

AT+CLEAR

Clear last connected device. Response is **OK+CLEAR**.

AT+ERASE

Clear pairing information. Response is **OK+ERASE**.

AT+IMME?

Check work mode. Response is **OK+Get:n**, where n=0 means connect immediately if possible, n=1 means wait until commanded.

AT+IMME n

Set work mode. Response is **OK+Set:n**, where n=0 means connect immediately if possible, n=1 means wait until commanded.