

## 1. Overview

The **Bluetooth UART Board** provides Bluetooth solution for adding wireless capability to your development system. It is suit for applications where wireless Bluetooth data transmission is needed.

The board uses UART interface for communication, hence, there needs no Bluetooth protocol knowledge to use these additional boards for your development system.

## 2. Master Module & Slave Module

We provide both "**Bluetooth Master UART Board** (aka, the **Master Module**)" and "**Bluetooth Slave UART Board** (aka, the **Slave Module**)", each of them works in single mode only. It is impossible to switch working mode for the module. The white spot on the top indicates a **Master Module**.

For establishing communication, there're something should be noted:

- it requires a **Master Module** and a **Slave Module** to communicate with each other
- **Master Module** communicate with **Slave Module** only
- **Master Module** cannot communicate with **Master Module**
- **Slave Module** is capable to communicate with PC or mobile devices which features Bluetooth capability
- **Slave Module** cannot communicate with **Slave Module**

### Embedded AT command set

The **Master Module** embeds the same AT command set with the **Slave Module**, expect the AT+NAME command.

The embedded AT command set is:

- **Master Module:**
  - Connection test - AT
  - Baud rate configuring - AT+BAUDx
  - Change password - AT+PINxxxx
- **Slave Module:**
  - Connection test - AT
  - Baud rate configuring - AT+BAUDx
  - Change password - AT+PINxxxx
  - Change device name - AT+NAMExxxx

The AT commands should be given through the TXD, RXD pins, other than the Bluetooth channel. Commands can be given by devices such as MCUs (51, AVR, PIC, MSP430, ARM, etc.) and/or PC (through RS232 to UART, or USB to UART).

## Operating Voltage

Both the **Master Module** and **Slave Module** are designed to use 3.3V power supply only. Be careful to use voltage translators (series connects a 1K resistor) on communication lines when connecting it to 5V systems.

## 3. Configuration Examples

The modules come with default configuration as: baud rate 9600bps, password 1234. All the options configured by AT commands are nonvolatile when power off.

### Hardware Connection

Connects the **Bluetooth UART Board** to the PC through another **USB to UART** module:

- Powering the **Bluetooth UART Board**
- Connects the **Bluetooth UART Board** and the **USB to UART** module
  - ◆ RXD <-> TXD
  - ◆ TXD <-> RXD

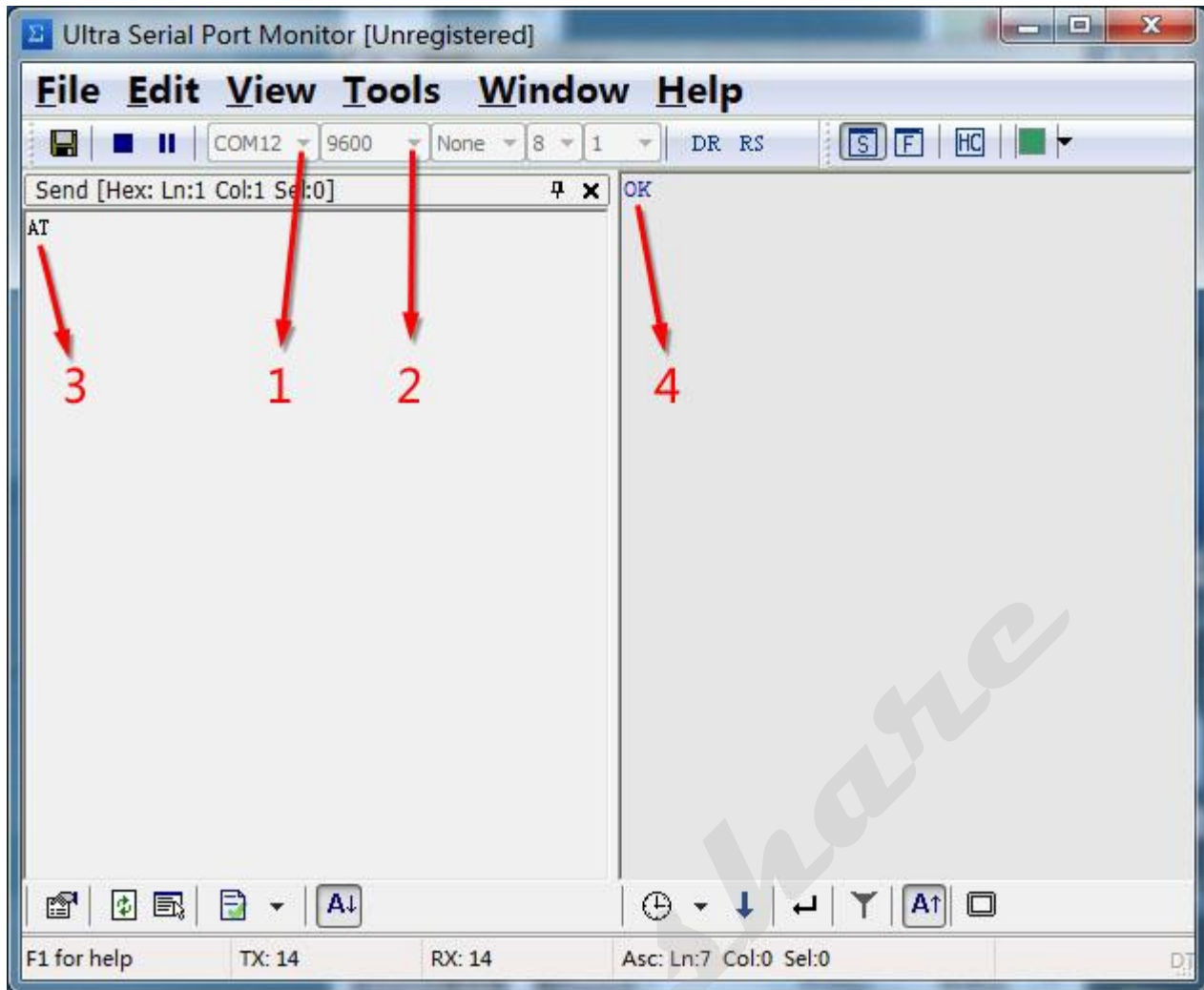
Don't establish Bluetooth connection with the PC at first, or the AT command configuration will failed. Launch the **Ultra Serial Port Monitor**, enter AT command and send it.

### Connection test

If hardware connection is correct, send command "**AT**", the response from **Bluetooth UART Board** should be "**OK**", as shown in the figure 1:

1. Select serial port
2. Select baud rate
3. Enter AT commands
4. Response from the Bluetooth module

Figure 1. Connection test



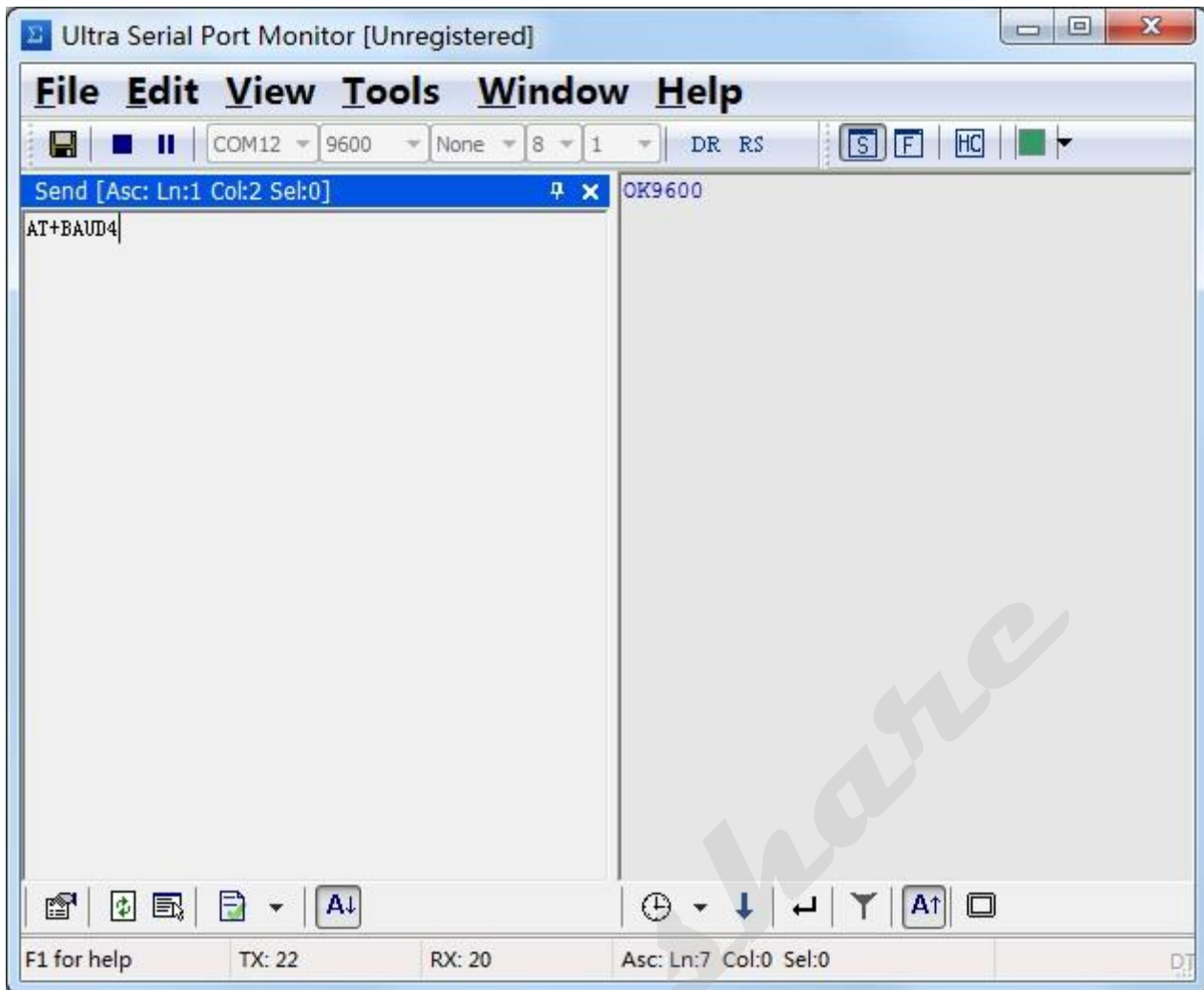
### Baud rate configuring

Send command "**AT+BAUD1**" (uppercase), the response from **Bluetooth UART Board** should be "**OK1200**", as shown in the figure 2.

The word "**BAUD**" in the command is followed by a **baud rate index**, which means:

- 1----1200bps
- 2----2400bps
- 3----4800bps
- 4----9600bps
- 5----19200bps
- 6----38400bps
- 7----57600bps
- 8----115200bps
- 9----230400bps
- A----460800bps
- B----921600bps
- C----1382400bps

**Figure 2. Baud rate configuring**



The baud rate configuration takes effect immediately, which means, if the baud rate of the **Bluetooth UART Board** had been changed, the baud rate in the **Ultra Serial Port Monitor** should be changed correspondingly to keep the communication active.

**Note:**

- Before changing the baud rate of the **Bluetooth UART Board**, make sure the baud rate is supported by the software (in our examples, it's the **Ultra Serial Port Monitor**), or it'll be unable to change the baud rate again, cause the baud rate of the Bluetooth module and software is mismatching.
- When the **Bluetooth UART Board** is connected to the PC through a **RS232 to UART** module, normally the baud rate should NOT be configured higher than 115200bps. If necessary, use more advanced devices to connect the Bluetooth module, such as MCUs and/or USB to UART which supports higher baud rate.

### Change password

Send command "**AT+PIN0000**", the response from **Bluetooth UART Board** should be "**OKsetPIN**", now the password is set to be "0000", as shown in the figure 3.

The password must consist of 4 characters.

Figure 3. Change password

