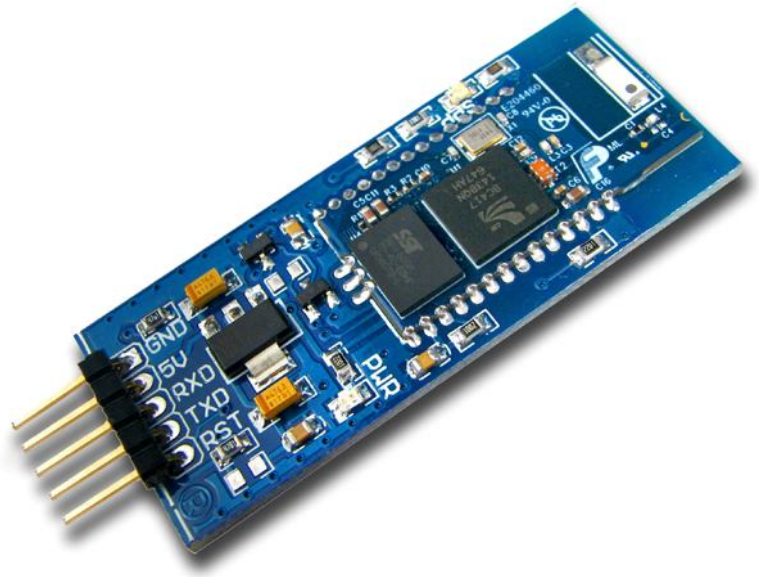
Document : Datasheet
Date : 05-Apr-10

Model # : WRL - 1323

BlueLINK - Bluetooth Module (5V Serial UART)

- User Manual



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BlueLINK is a compact Bluetooth Module (5V Serial TTL) from rhydoLABZ. The module has built-in Voltage regulator and 3V3 to 5V level converter that can be used to interface with 5V Microcontrollers. The module has only 5 pins (Standard 2.54mm berg strip) VCC, GND, TX, RX and RESET. The module is factory configured in Transparent Mode and hence there is no command required for normal operation.

The BlueLINK is a Drop-in replacement for wired serial connections, transparent usage. You can use it simply for serial port replacement to establish connection between MCU and GPS, PC to your embedded project / Robot etc. Any serial stream from 9600 to 115200 bps can be passed seamlessly from your PC/PDA/MOBILE to your target board!

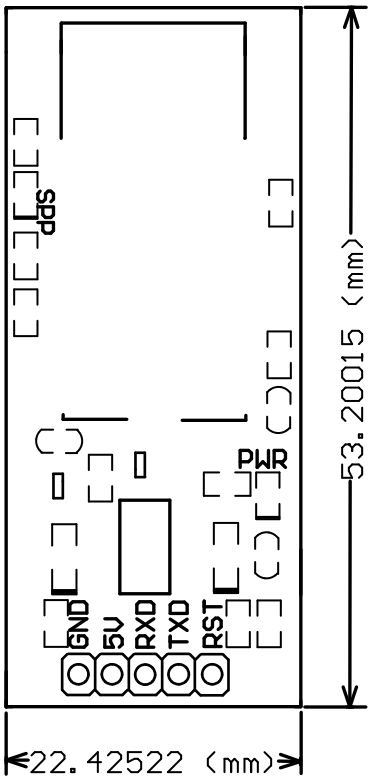
FEATURES

- Support Master & Slave Mode
- 5-Pin Standard Bergstrip
- Bluetooth core V 2.0 compliant
- SPP (Serial Port Profile) support
- Support UART interface to host system
- Serial communications @ 9600-115200bps
- No Setup/Initial command required
- Breadboard Compatible
- Onboard Status and Power LED
- Encrypted connection
- Frequency: 2.4~2.524 GHz
- Built-in Chip antenna
- Power Supply: 5V
- Dimension: 55mm x 19mm x 3.2 mm
- Operating Temperature: -40 ~ +70C

PIN DEFINITIONS

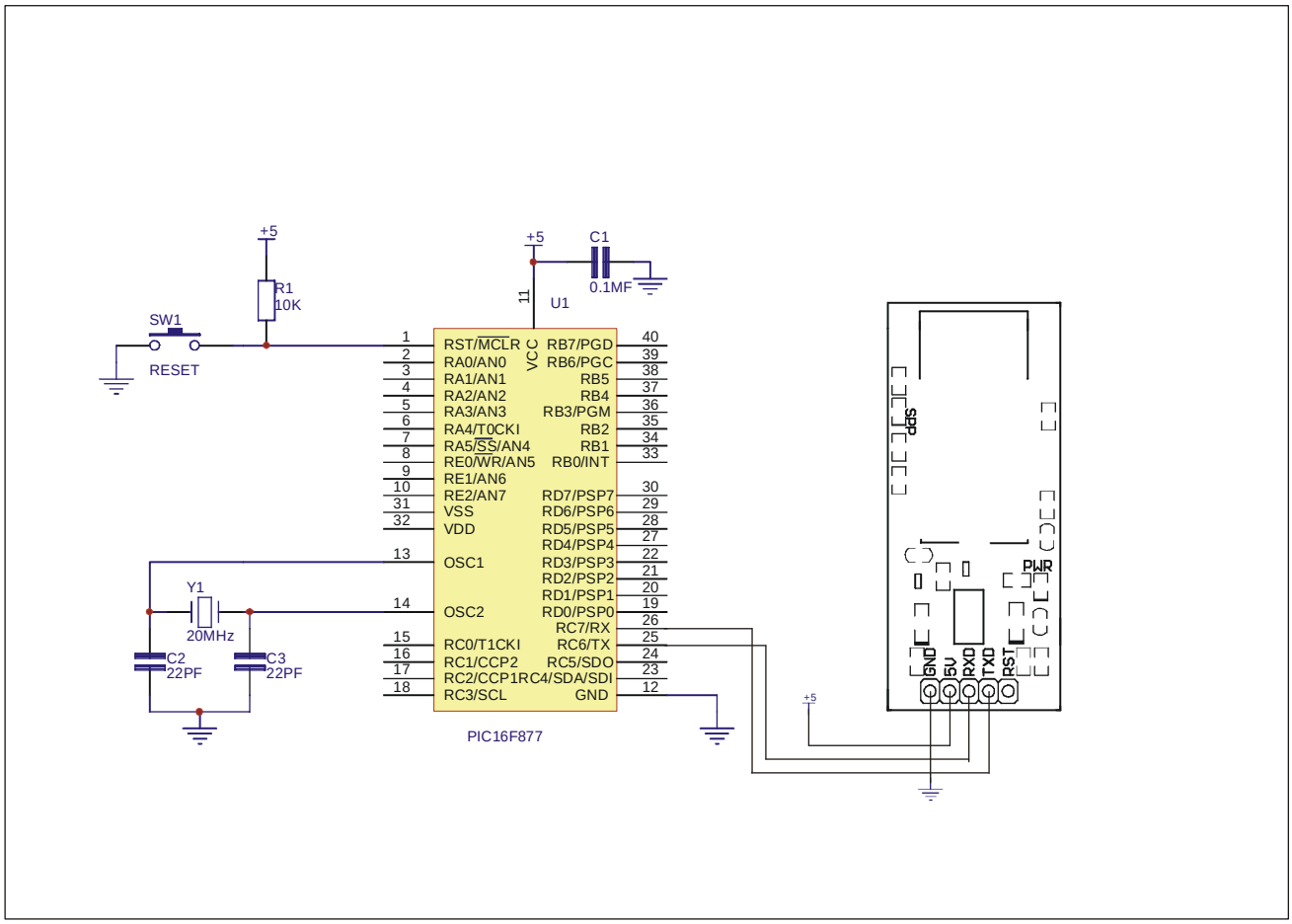
PIN	PIN NAME	DETAILS
GND	Ground	Ground Level of Power supply
5V	Power Supply	Power Supply Input (5V)
RXD	Receive	Pin for Data Reception
TXD	Transmit	Pin for Data Transmission
RST	Reset	Reset Input (Internally Pulled-Up)

DIMENSIONS

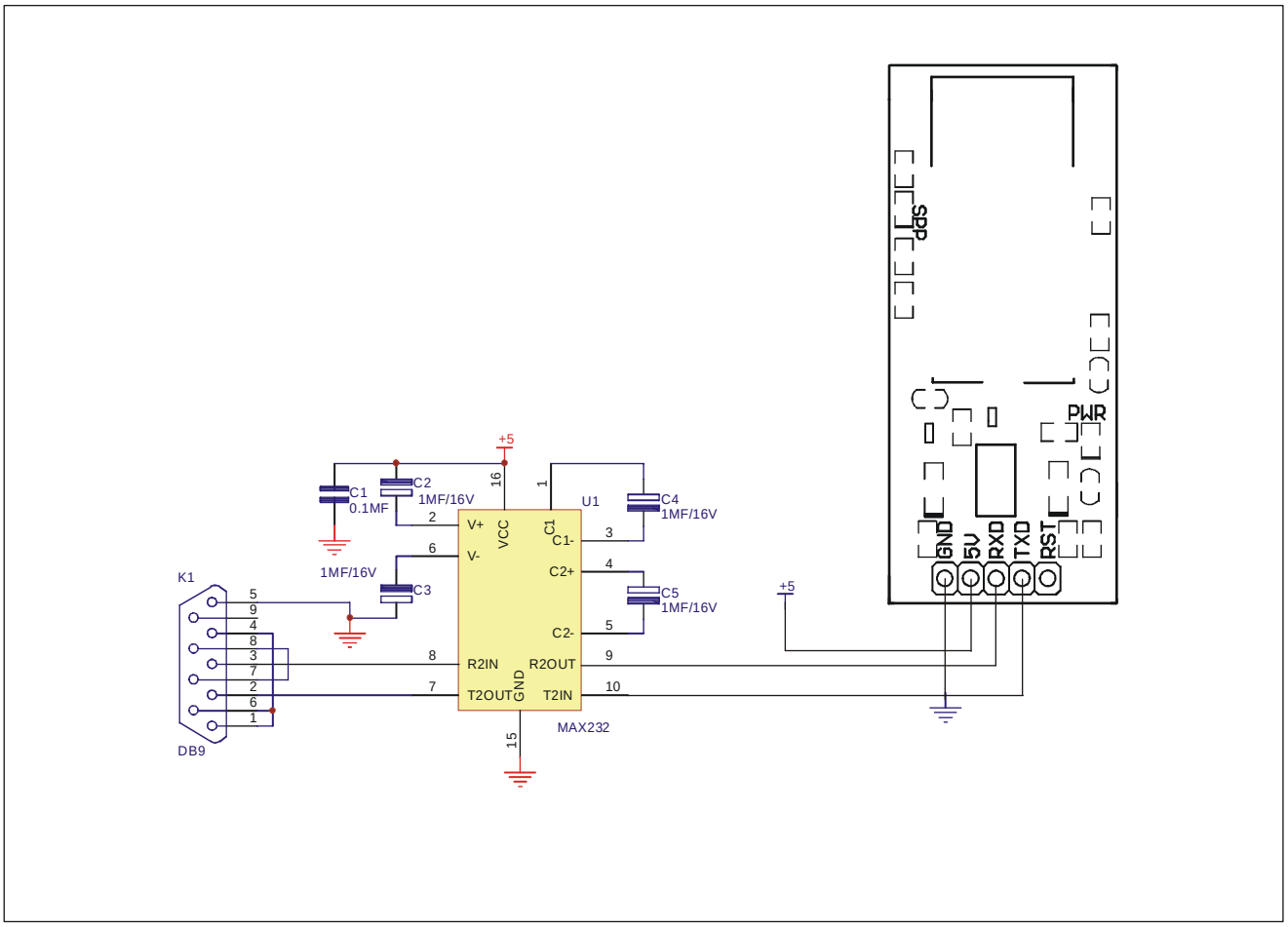


INTERFACING DETAILS

➢ Below is an example of interfacing the BlueLINK with PIC16F877A microcontroller.



➢ Below is an example of interfacing the BlueLINK to PC Serial Port (via MAX 232)



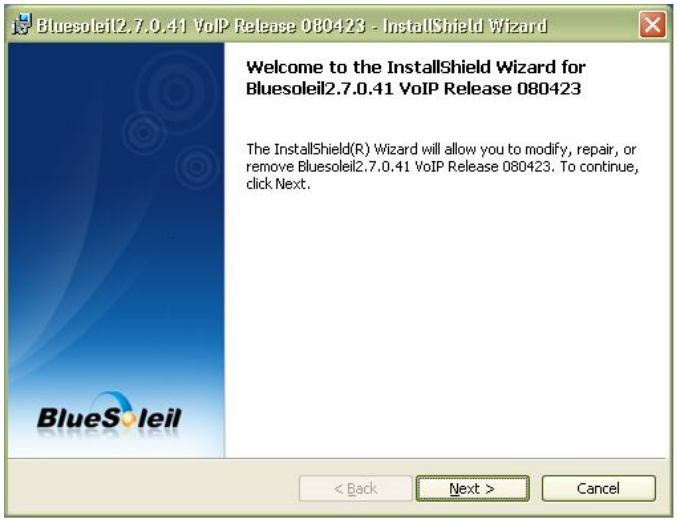
DC CHARACTERISTICS

Parameter	Condition	Specification			Unit
		Min.	Typ.	Max.	
Supply Voltage	Vcc	4.5	5.0	5.5	V
Power Consumption @ 5V		40	50	60	mA

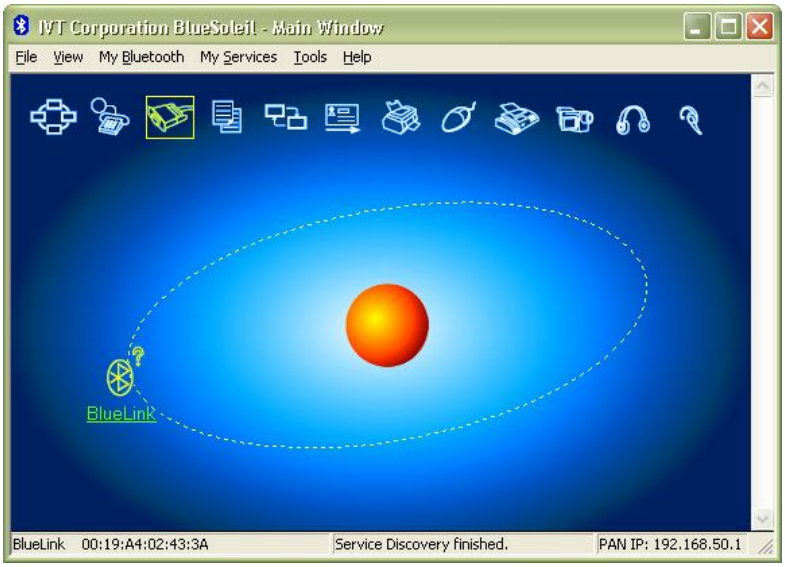
CONFIGURING BlueLINK

➢ BlueLINK IN SLAVE MODE (from PC)

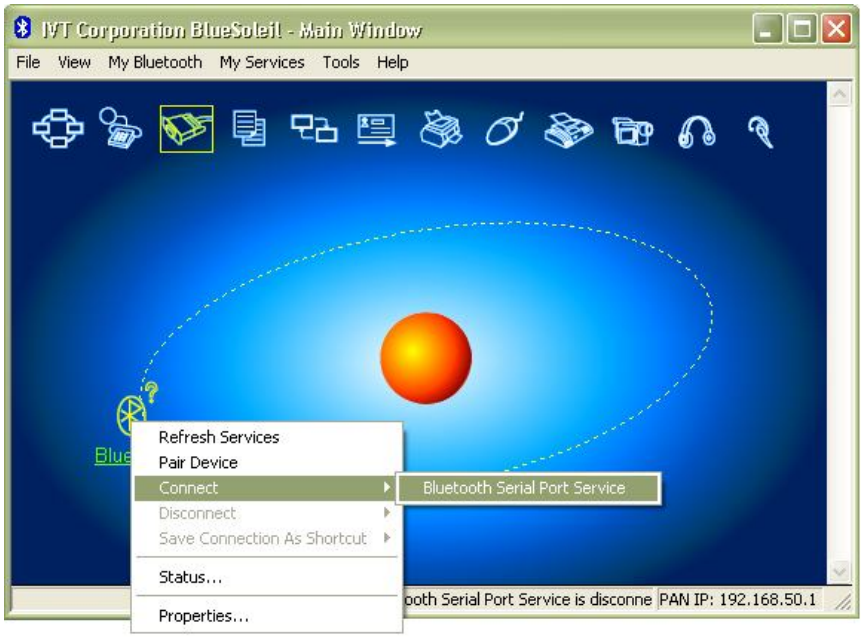
1. Connect the Bluetooth Dongle to the USB port of your PC.
2. Install the BlueSoleil software in your PC



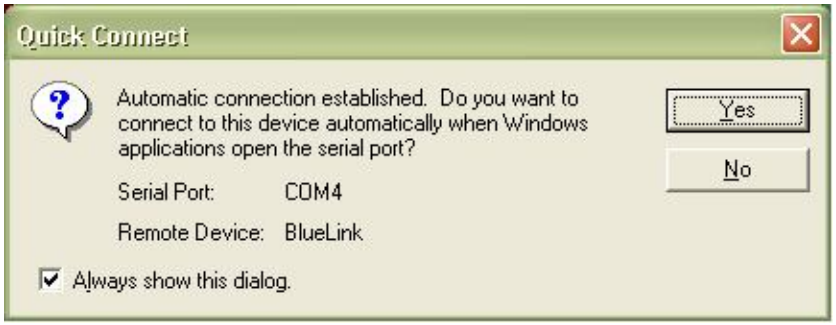
3. Power the BlueLINK Module on the other side.
4. Click on the BlueSoleil icon in your desktop. The Bluetooth icon will be shown in the system tray. Right click on the icon and click “Display”.
5. Click on the Globe icon in the centre to search for the Module. The Module id will be shown in the software. Double click on the Module id. The Module Name will be shown.



6. Right Click on the Module Name and select “Connect” → “Bluetooth Serial Port Service”.



7. The connection is established and the software displays the COM Port where the Bluetooth is connected.



➢ BlueLINK IN MASTER MODE

The sequence of commands used to configure the BlueLINK Module in Master Mode is listed below. These commands can be passed from any microcontroller (UART) or from PC using serial communication software.

Host : BlueLink

COMMAND	**LLL**
DESCRIPTION	Enter command mode
RESULT CODE	\r\nOK\r\n

COMMAND	**\r\nAT+MODE=1\r\n**
DESCRIPTION	Enter Master Mode
RESULT CODE	\r\nOK\r\n

COMMAND	**\r\nAT+BSECMODE=1,1\r\n**
DESCRIPTION	Set Application Level Security
RESULT CODE	\r\nOK\r\n

COMMAND	**\r\nAT+BDISCMODE=3,180\r\n**
DESCRIPTION	Set general discoverable, not connect mode and time out period
RESULT CODE	\r\nOK\r\n

COMMAND	**\r\nAT+INQ\r\n**
DESCRIPTION	Search bluetooth devices
RESULT CODE	\r\nOK\r\n <cr><lf>+INQ:00:12:39:00:34:35,”RLMobile”,00:13:45:46:99:23,”Jeny”<cr><lf>

COMMAND	**\r\nAT+BPAIR=Pin,Bluetooth ID\r\n**
DESCRIPTION	Pair The Device
RESULT CODE	\r\nOK\r\n

COMMAND	**\r\nAT+BPAIR=?\r\n**
DESCRIPTION	Check if the device is paired?
RESULT CODE	<cr><lf>+BPAIR: 00:12:39:00:34:35 <cr><lf>

COMMAND	**\r\nAT+CON\r\n**
DESCRIPTION	Connect The Paired Device
RESULT CODE	<cr><lf>+CON:1<cr><lf> if connected

DATA TRANSFER USING MICROCONTROLLER

The BlueLINK should be connected to the UART module of the microcontroller (BaudRate 9600). The connections should be made as per the circuit diagram in this manual. If the Bluetooth connection is already configured from PC side, the data can be transmitted and received through UART module.

COMMAND MODE IN BLUELINK MODULE

The BlueLINK should be connected to the UART module of the microcontroller or Serial Port of the PC (BaudRate 9600). When the module is powered up, it returns an "**OK**" (ASCII Format). The host can check for this data. The Module is configured using **AT** (Attention) Commands. For this the Module should enter the command mode.

The command for entering the Command Mode is LLL.

The module would parse the stream received on the UART and looks for this command during the **first 60 seconds (1 Min)** after the module is powered up. The module would react to other commands only after it receives this command. The command mode would **end only after the module receives Exit** command (===). During command mode, the user could issue any commands to configure and operate the module. After the module leaves the command mode, the module would start the 60 seconds timer again and could enter command mode again if this command is received again.

- The format of an AT command from the HOST to the module shall be:

  <cr><lf><AT command><cr> <lf>

- The format of the OK code from the module to the HOST shall be:

  <cr><lf>OK<cr><lf>

- The format of the generic ERROR code from the module to the HOST shall be:

  <cr><lf>ERROR<cr> <lf>

- The format of an unsolicited result code from the module to the HOST shall be:

  <cr><lf>RESULT CODE<cr> <lf>

Note : **<cr><lf> corresponds to Carriage Return and Line Feed (ie \r\n or 0x0d, 0x0a)**

Detailed AT Command set is given as a separate document.

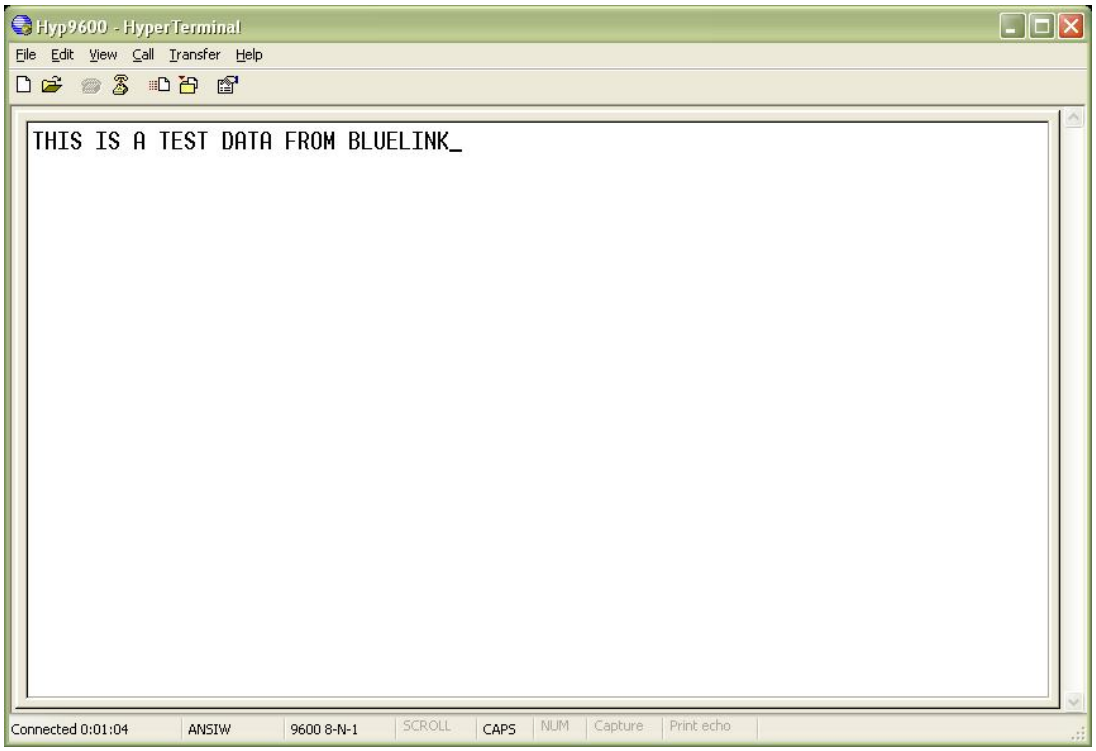
POINTS TO NOTE

- Do not attach this device directly to a PC RS-232 Port. You require an RS-232 to TTL converter circuit if you need to attach this to a computer.
- The Reset (RST) pin in the BlueLINK module is internally pulled up. A low input on this pin from any host device will reset the module.
- The default passkey for establishing connection is 8888. All default settings will be displayed using AT+SETUP command.
- External Command set is given as a separate document. Please refer it for further study.

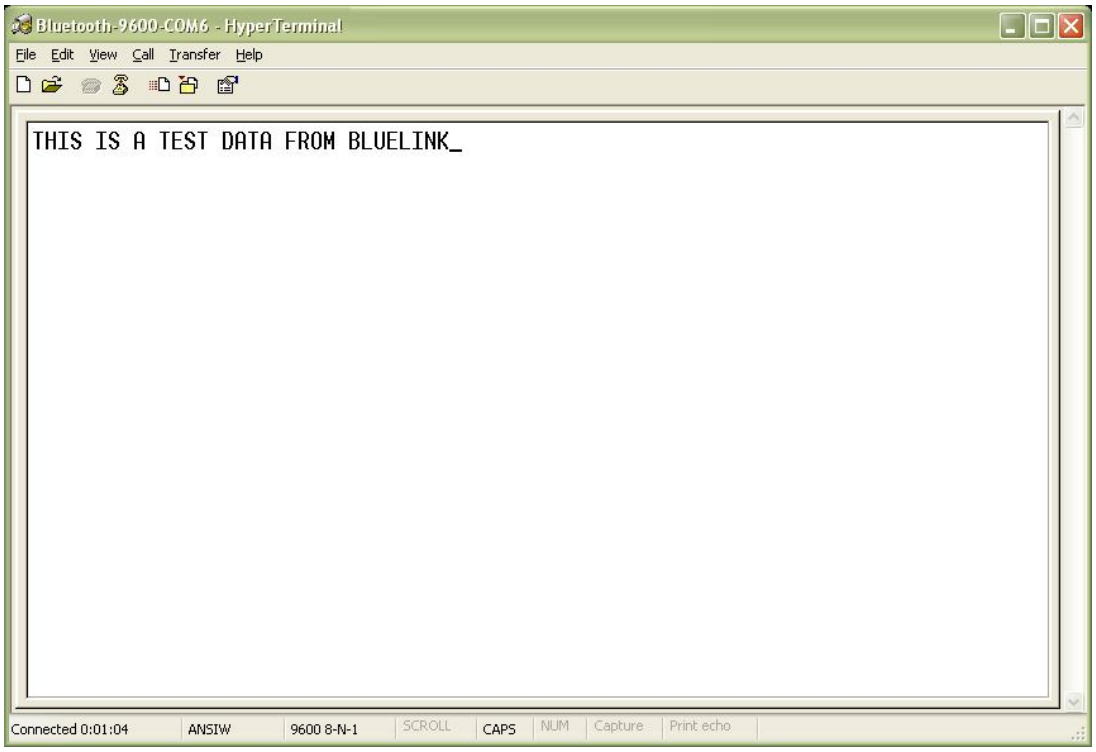
QUICKSTART

1. Connect the Bluelink module to a PC Com port (using RS-232 to TTL converter circuit) and Power it Up.
2. Create a HyperTerminal (Windows tool for serial port communications) window with Baudrate 9600 and connect it to the ComPort to which BlueLINK is connected.
3. Connect the Bluetooth Dongle to the USB port of another PC and Install the BlueSoleil software. Search for the BlueLINK module and establish a serial connection with BlueLINK.
4. During connection process, the module asks for **passkey**. **The default pass key is 8888**.
5. Create a HyperTerminal window with Baudrate 9600 and connect it to the ComPort to which Dongle is connected.
6. Type data in any of the HyperTerminal window and you could see the same data in the other window.

Terminal 1– PC where BlueLINK is connected



Terminal 2 – PC where Bluetooth Dongle is connected



TECHNICAL SUPPORT

If you are experiencing a problem that is not described in this manual, please contact us. Our phone lines are open from 9:00 AM – 5.00 PM (*Indian Standard Time*) Monday through Saturday excluding holidays. Email can be sent to *support@rhydolabz.com*

LIMITATIONS AND WARRANTEES

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