Bluegiga - Get started guide

WT11, WT12, WT32 & WT41

Below are recommended connections for providing power and comm's to the Bluegiga modules using the FTDI USB to 3V3 serial cable part number TTL232R-3V3.
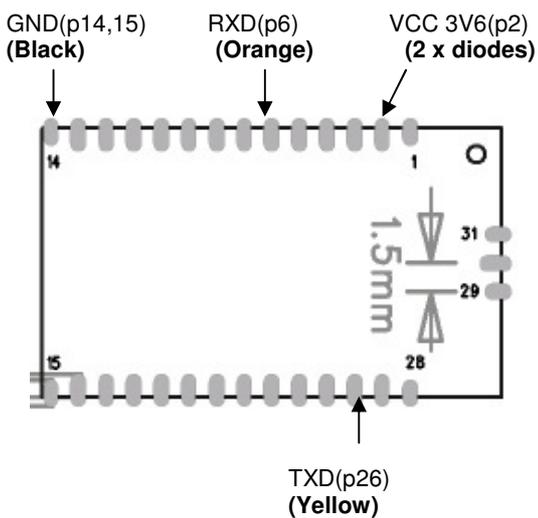
By placing two diodes in series with the +5V output of the cable it is possible to provide 3.8V to the module and for low data rate applications all other connections except for the GND, TXD and RXD are not required.
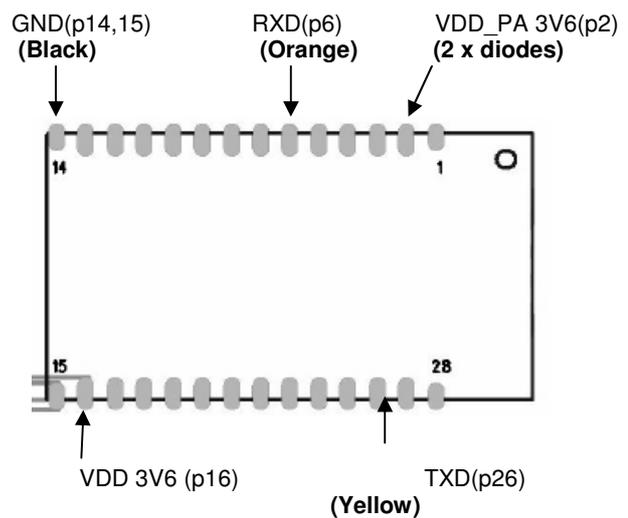
TTL232R-3V3 signals

Table 1 - Serial TTL Signals

Header pin No.	Name	Type	Colour	Description
1	GND	GND	Black	Device groud supply pin.
2	CTS#	Input	Brown	Clear to Send Control input / Handshake signal.
3	VCC	Output	Red	+5V Output
4	TXD	Output	Orange	Transmit Asynchronous Data output.
5	RXD	Input	Yellow	Receive Asynchronous Data input.
6	RTS#	Output	Green	Request To Send Control Output / Handshake signal.

WT12 Top View   **WT11i Top View**

GND(p14,15)   RXD(p6)   VCC 3V6(p2)   GND(p14,15)   RXD(p6)   VDD_PA 3V6(p2)
(Black)   **(Orange)**   **(2 x diodes)**   **(Black)**   **(Orange)**   **(2 x diodes)**

1.5mm 31 29

TXD(p26)
(Yellow)

VDD 3V6 (p16)   TXD(p26)
(Yellow)

WT32 Top View   **WT41 Top view**

RF
RFTP

VREG_ENA — 1
DGND
DGND
DGND
AIO0
AIO1
PIO0
PIO1
PIO2
PIO3
USB_D-
USB_D+
PIO9
PIO10
UART_RXD
UART_TXD
VDD_IO — 17

50 — AUDIO_OUT_P_LEFT
AUDIO_OUT_N_LEFT
AGND
AUDIO_OUT_P_RIGHT
AUDIO_OUT_N_RIGHT
AUDIO_IN_N_LEFT
AUDIO_IN_P_LEFT
AGND
AUDIO_IN_N_RIGHT
AUDIO_IN_P_RIGHT
MIC_BIAS
AGND
VDD_CHG
VDD_BAT
LED0
SPI_MOSI
SPI_MISO
SPI_CLK
SPI_NCSB
31 — DGND

GND
RESET
UART_NRTS
UART_NCTS
PIO7
PIO6
PIO5
PIO4
PCM_IN
PCM_OUT
PCM_SYNC
PCM_CLK

Figure 2: WT32 connection diagram (top view)

WT41: pins 59,58,57,56,55,54,53 GND; 52 GND; 1–10 GND; 11 VDD_PA; 12 PIO2; 13 PIO3; 14 UART_RTS; 15 UART_RX; 16 GND; 17 USB+; 18 USB-; 19 UART_CTS; 20 PCM_IN; 21 PCM_CLK; 22 PCM_SYNC; 23 GND; 51 RF; 50 RFGND; 49–44 GND; 43 AIO; 42 UART_TX; 41 PIO5; 40 SPI_MOSI; 39 SPI_MISO; 38 SPI_CLK; 37 SPI_CSB; 36 GND; 35 PIO7; 34 PIO6; 33 RESET; 32 VDD; GND; bottom 24 GND, 25 PCM_OUT, 26 GND, 27 GND, 28 GND, 29 PIO4, 30 GND

RXD(p15)   TXD(p16)   DGND + AGND (p2,3,4,18,31,39)   RXD (p15)=(Orange)   TXD(p42)=(Yellow)
(Orange) **(Yellow)** **(Black)**

VDD 3.3V (p32) = **(Red via 2 x diodes)**

VDD_IO 3.3V(p17) + VREG_ENA 3.3V (p1) + VDD_BAT **(RED via 2 x diodes)** GND(p1,50) = **Black**

WT32 Power Supply options

Configuration where the
external regulator is
latched on/off by WT32.

Configuration without
power latching.

Introduction

If all you do is provide power to the iWRAP module, then by default it will become visible in the inquiry and can receive incoming connections.

For this you only need to connect GND and 3V3 pins, ie. for the WT11/12 example pin 2 to 3.3V and pin 14 or 15 to GND.

If you want to make connection to the module, then you can try searching the module in your PC and then establish SPP connection.

You must remember that by default there's no PIN code set in the module, so you will be unable to pare with your PC for example Win XP Buetooth stack seems to require a PIN to be used, otherwise it won't connect, this is not the case for all BT stacks though.

Step 1

Connect the module to a USB to Serial 3V3 cable, the cable must provide level shifting similar to the FTDI cable part number TTL-232R-3V3 providing 3V3 logic levels to the module. The TTL-232R-3V3 is available from Glyn please contact Alan Suyko for further details alan@glyn.com.au.

WT11/12 Example

Connect TXD>RXD(pin6) RXD>TXD(pin26), VCC(3V3) pin2 and GND pin14 or 15. The module draws very little current so two AA batteries will suffice.

Note:

RTS and CTS are recommended to be used for making data transfer reliable. Logic level is 3.3V and it is recommend to use HW flow control ie. RTS/CTS signalling in the end application to prevent issues at high data rates.

Step 2

Create Hyperterminal connection, 115200, 8bit, 1stop, no parity, no flow control.

Step 3

Test the connection with the **AT** <cr> should return OK or switching on the module should provide you with WRAP THOR build etc.
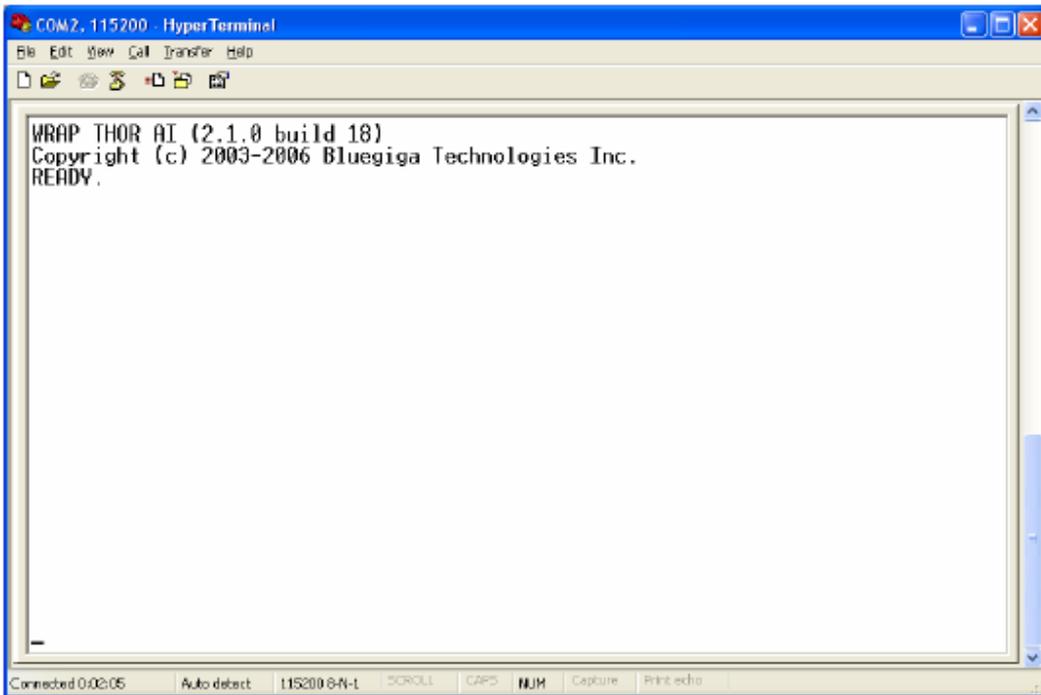
Figure 2: iWRAP boot prompt

Step 4

Refer to page 17 of the iWrap User guide "iWRAP 2.2.0 User Guide" for switching between command and data mode note Command mode is the default mode when iWRAP is powered up. In command mode, ASCII commands can be entered to iWRAP to perform various functions.

Step 5

Refer page 45 **SET BT NAME**

SET BT NAME {friendly_name}

Step 6

To find MAC of your device (the one you're using), give command **SET**.
You can see the MAC in the line **SET BT BDADDR 00:07:80:12:34:56**.

SET is a good example command since it list the iWRAP settings.

To find remote BT devices, use command **INQUIRY 8**.

Parameter '8' means 8*1.25s = 10s.

You can use other values too, but '8' will allow you to query all the surrounding devices according to BT specification. To get device Friendly names you can use **INQUIRY 8 NAME**, it takes a lot longer though.

Step 7

4

If you are using a Bluetooth dongle to communicate to the module such as the BlueSoleil program to connect to the WT12 you will most likely need to pair with the Bluetooth module via a unique PIN.

Don't use **SET BT PAIR**, since it only lists already existing pairing information. Instead use **SET BT AUTH * 1234** (this would set PIN code to '1234'), it can be 1-16 characters long.

Once the PIN is set, then you can try BlueSoleil again, then it asks for PIN and you give 1234.

Then if you type **SET**, you can see that **SET BT PAIR** pairing information with BlueSoleil PC has been created automatically.

Bluegiga - For all module enquiries please contact Vasan Srinivasan vasan@glyn.com.au or if you have any further technical questions please do not hesitate to send your requests to the Bluegiga Technical Support email address at support@bluegiga.com

The **FTDI** USB to 3V3 Serial cable TTL-232R-3V3 can be purchased from the Glyn Store at the below link and for other FTDI products - Please contact Alan Suyko by email alan@glyn.com.au or phone +612 9889 2520.
http://www.glynstore.com/products/FTDI-TTL%252d232R%252d3V3-USB-to-Serial-TTL-Converter-Cable.html

Glyn Ltd Australia

Unit 3B, 64 Talavera Rd
Macquarie Park
North Ryde NSW 2113

Ph: +61 2 9889-2520
Fax: +61 2 9889-2954
www.glyn.com.au

GLYN Ltd. New Zealand

Unit 5/18, Airborne Road
Albany, North Shore
Auckland, New Zealand 0632

Tel. +64-(0)9-441-9050
 Fax +64-(0)9-441-9060
www.glyn.co.nz