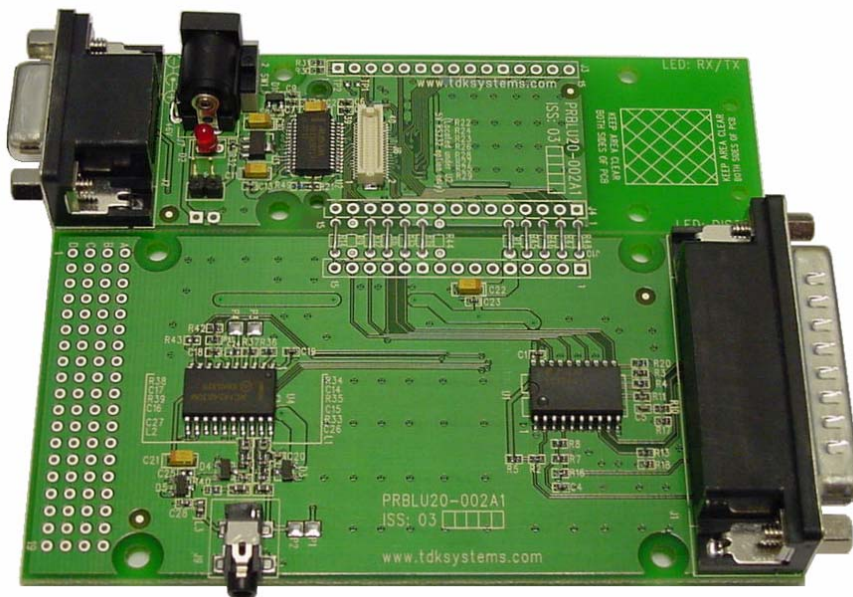


blu²ⁱ Module Development Kit User Guide



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Before You Begin

Congratulations on your purchase of the TDK Systems blu²ⁱ Module Development Kit. The Development Kit is available in 2 different versions.

Package Contents

Part Code: TRBLU20-00700	Part Code: TRBLU20-00800
blu ²ⁱ Module blu ²ⁱ Module Motherboard blu ²ⁱ CD-ROM Serial Cable Power Supply	blu ²ⁱ Module blu ²ⁱ Module Motherboard blu ²ⁱ CD-ROM Serial Cable Power Supply TDK Bluetooth USB Adaptor USB Adaptor CD-ROM

Module Motherboard

The blu²ⁱ Module Motherboard allows the TDK Systems blu²ⁱ Module to be connected to a PC. The motherboard provides RS232 level conversion and a standard 9 way D type connector. In addition it also has a 25 way D type connector, which gives access to the SPI bus on the module for firmware updates. There is also an audio socket which allows for experimentation with the modules audio capability.

RS232 Serial Interface

This provides a direct interface to any standard RS232 port on a PC or peripheral. The 9 way D type connector (J2) can be plugged straight into a serial port on a PC or peripheral. If access to the serial port is restricted, the serial cable provided can be used to connect the motherboard to the PC.

Component U2 is a level shifter on the RX, TX, CTS, RTS, DTR, DSR, RI and DCD signals that converts between the 3.3V levels required on the module to the standard RS232 levels.

Audio Interface

Connector J9 allows a headset or audio source to be connected to the Module. The PCM signals from the Module are converted by CODEC (U4) to analogue output. The microphone input is passed via the CODEC to the PCM input of the Module. The circuit is designed to drive a simple mobile phone type headset.

Flash Upgrade Interface

The 25 way D type connector (J1) can be plugged straight into the LPT port of the PC. This allows the Module to be flash upgraded using the BlueLab utilities provided by Cambridge Silicon Radio (CSR).

Note: The Audio and Flash upgrade circuit are on one part of the PCB so that they could be removed for applications using the RS232 interface only. The board is designed so that if the wire links are removed it can be separated into two parts.

Software

The motherboard and blu²ⁱ Module will connect to the serial port of any PC. The user can simply communicate with the module using any Terminal Emulator software such as HyperTerminal or Procomm or the TDK Terminal application supplied.

TDK Terminal is a terminal emulation application capable of running on Windows 98, Me, 2000 and XP operating systems. It was developed specifically to aid development and testing of the blu²ⁱ Module. It allows connection to serial devices using any combination of the following communications parameters:

COM Port:	1 to 255
Baud rate:	300 to 921600
Parity:	None, Odd, Even
Data Bits:	7 or 8
Stop Bits:	1 or 2
Handshaking:	None or CTS/RTS

The unique benefits of using TDK Terminal are:

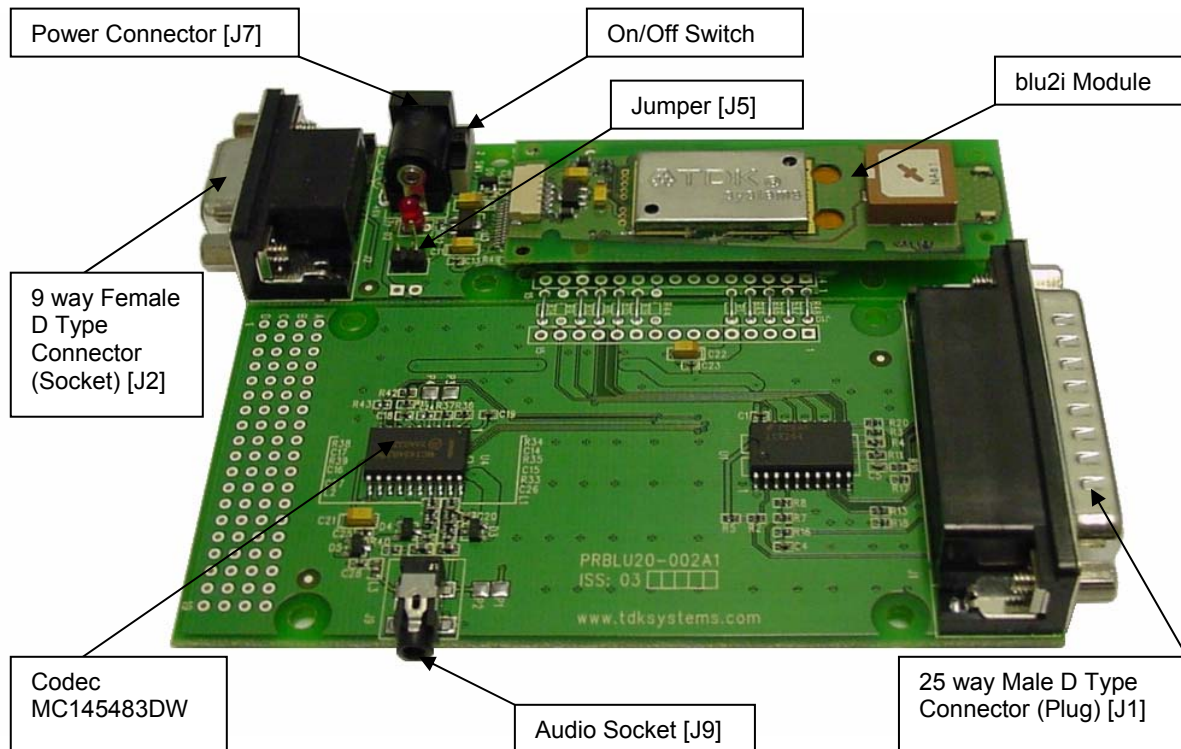
- Status of DSR, CTS, DCD and RI are continuously displayed
- DTR can be directly controlled via a check box
- RTS can be directly controlled
- BREAK signals can be sent

Also, there is a “Data Transfer Test” mode allowing data to be sent as fast as the handshaking will permit. This feature is very useful for testing the bit transfer rate of a Bluetooth connection.

TDK Terminal is included on the blu²ⁱ CD and is also available for download from <http://www.blu2i.com>.

Interface Specification

A picture of the blu²ⁱ Module mounted on the motherboard is shown below.



Serial port connector (J2)

The pin-out for the 9 way D type connector is shown in the table below.

Note: The direction is as seen from the Modules perspective.

Pin	Description	Signal	Direction
1	Data Carrier Detect	DCD	Output
2	Transmit	TX	Output
3	Receive	RX	Input
4	Data Set Ready	DSR	Input
5	Ground	GND	---
6	Data Terminal Ready	DTR	Output
7	Clear To Send	CTS	Input
8	Ready To Send	RTS	Output
9	Ring Indicate	RI	Output

Parallel port connector (J1)

Pin	Description
1	N/C (Not Connected)
2	SPI_CS
3	N/C (Not Connected)
4	N/C (Not Connected)
5	N/C (Not Connected)
6	N/C (Not Connected)
7	N/C (Not Connected)
8	SPI_MOSI
9	SPI_CLK
10	SPI_MISO
11	N/C (Not Connected)
12	N/C (Not Connected)
13	N/C (Not Connected)
14	N/C (Not Connected)
15	N/C (Not Connected)
16	SPI_RST
17	N/C (Not Connected)
18	N/C (Not Connected)
19	N/C (Not Connected)
20	GND
21	GND
22	GND
23	GND
24	GND
25	GND

Jumper (J5)

Signal	Description
PC DTR	Optional link to power the board from DTR from the PC

Power connector (J7)

Pin	Signal	Description
1 (centre pin)	VCC	Nominal 5V (3.6v-6v)
2,3 (outer)	GND	

Jumper (J8)

Signal	Description
Power input	No link, used as alternative power input

Headset connector (J9)

Pin	Signal	Description
1	GND	
2	MIC IN	Audio input
3	H/S OUT	Audio output
4	N/C	

Electrical Characteristics

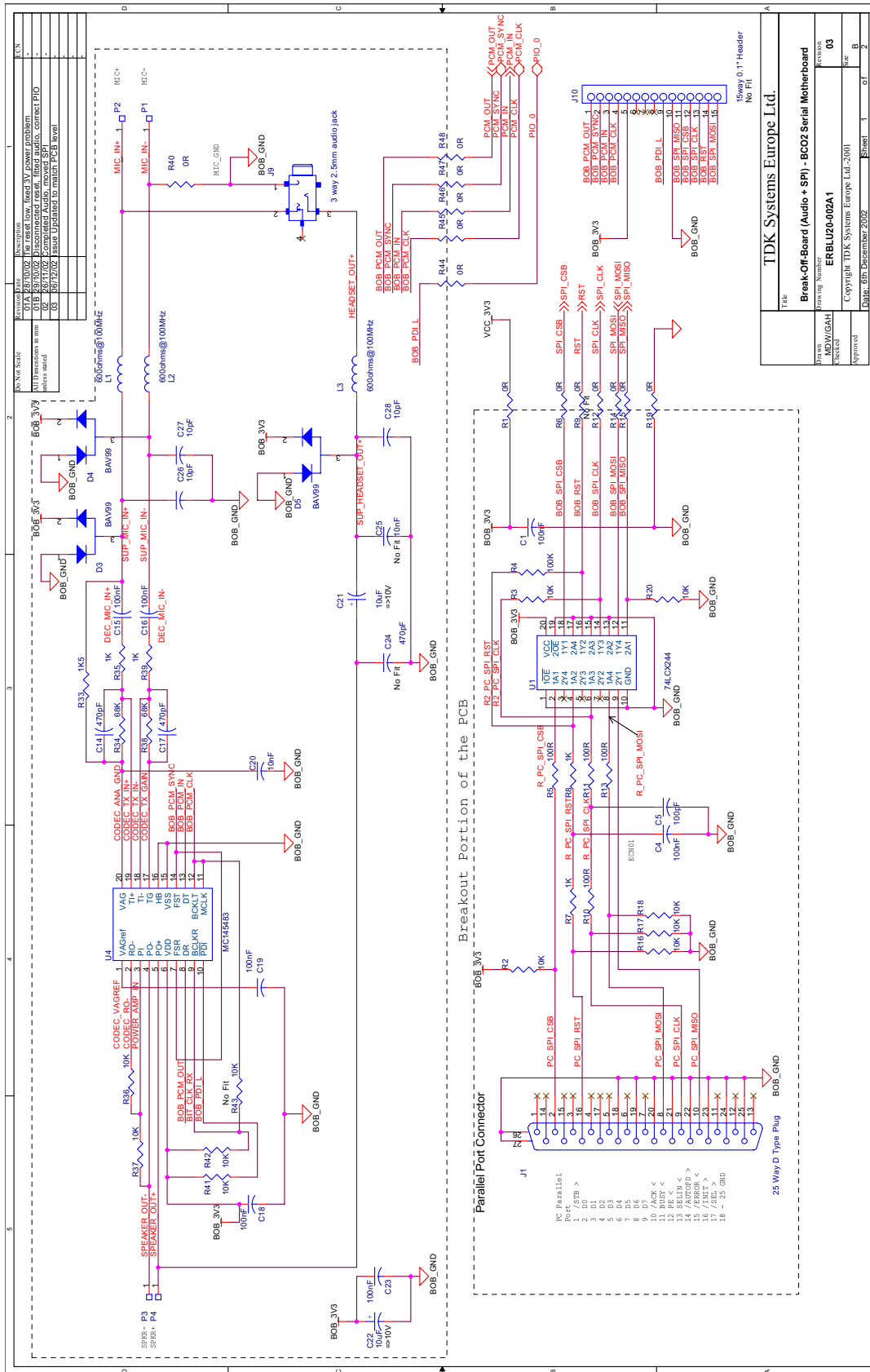
Power Supply

	Minimum	Typical	Maximum
Input Voltage	3.6V	5V	6V

Audio Interface

	Minimum	Typical	Maximum
Headset Impedance		300Ω	
Headset o/p voltage		1.78V	
MIC common mode range	1.2V		2.1 V

Schematics



Warranty

TDK warrants that its products shall conform to TDK's published specifications and remain free from defects in materials and workmanship under normal, proper and intended use for a period of two (2) years from date of purchase, provided that proof of purchase be furnished with any returned equipment.

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