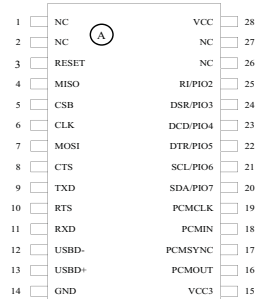


Signal Description

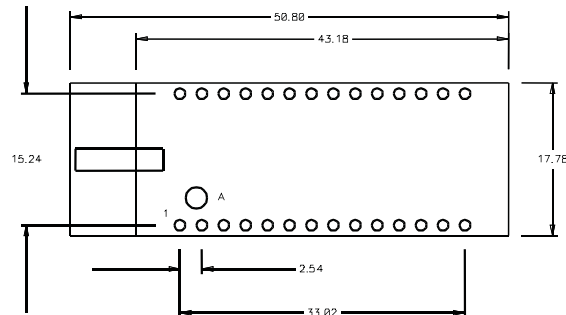
No.	Name	Type	Description
1	NC		Not connected
2	NC		Not connected
3	RESET	IN	Reset input, active high
4	MISO	OUT	SPI data out Only used for firmware download and configuration with development kit. Leave unconnected for normal operation.
5	CSB	IN	SPI chip select Only used for firmware download and configuration with development kit. Leave unconnected for normal operation.
6	CLK	IN	SPI clock Only used for firmware download and configuration with development kit. Leave unconnected or connect to GND for normal operation.
7	MOSI	IN	SPI data in. Only used for firmware download and configuration with development kit. Leave unconnected or connect to GND for normal operation.
8	CTS	IN	UART CTS
9	TXD	OUT	UART transmit data
10	RTS	OUT	UART RTS
11	RXD	IN	UART receive data
12	USBD-	I/O	USB D+ (note 1) Connect to GND if not used
13	USBD+	I/O	USB D- (note 1) Connect to GND if not used
14	GND	Power	System ground
15	VCC3	Power	Regulated 3.3 Volt power input or output. Connect to VCC if used as input.
16	PCMOUT	OUT	PCM data out (note 2)
17	PCMSYNC	I/O	PCM sync (note 2)
18	PCMIN	IN	PCM data in (note 2)
19	PCMCLK	I/O	PCM clock (note 2)
20	SDA/PIO7	I/O	I2C Data or general purpose I/O
21	SCL/PIO6	I/O	I2C clock output or general purpose I/O
22	DTR/PIO5	I/O	UART DTR output or general purpose I/O
23	DCD/PIO4	I/O	UART DCD input / output or general purpose I/O
24	DSR/PIO3	I/O	UART DSR input or general purpose I/O
25	RI/PIO2	I/O	UART RI input / output or general purpose I/O
26	NC		Not connected
27	NC		Not connected
28	VCC	Power	Unregulated power supply. Connect to VCC3 if a regulated 3.3 V power supply is used.
A	A	Analogue	external antenna connector 50 Ohm Connector type MMCX

Notes:

- 1 USB operation is subject to firmware support.
- 2 Codec operation is subject to firmware support.



Device Pin Out



Mechanical Dimensions

Electrical Characteristics

Absolute maximum ratings

Stresses above those listed here can cause permanent damage to the device.

Supply Voltage (VCC)	20 V
Supply Voltage (VCC3)	3.6 V
Storage temperature	-40 ... +85 °C

Recommended Operation Conditions

Item	Min	Typ.	Max	Unit	Notes
Operating Voltage VCC	4	-	10	V	
Operating Voltage VCC3	3.2	3.3	3.4	V	
Operation Temperature	-40		+70	°C	

DC Electrical Characteristics

Item	Min	Typ.	Max	Unit	Notes
Digital Terminals (except USB)					
V _{IL} Input Low Voltage	-0.4		0.8	V	
V _{IH} Input High Voltage	0.7VCC3		VCC3+0.4	V	1
V _{OL} Output Low Voltage (IO=4mA)			0.2	V	
V _{OH} Output High Voltage (IO=-4mA)	VCC3-0.2			V	1
USB Terminals					
V _{IL} Input Low Voltage			0.3VCC3	V	
V _{IH} Input High Voltage	0.7VCC3			V	1
V _{OL} Output Low Voltage (IO=4mA)	0		0.2	V	
V _{OH} Output High Voltage (IO=-4mA)	2.8		VCC3	V	1
Power Consumption					
Operation Current Tx active at maximum power		110	150	mA	
Device Idle		tbd		mA	

Notes:

1) VCC3 is 3.3 Volt typical when internal voltage regulator is used.

Radio Characteristics

Item	Min	Typ.	Max	Unit	Notes
Carrier Frequency	2402		2480	MHz	
RF Antenna Impedance		50		Ohm	
RF Output Power	11	14	17	dBm	
RF Receiver Sensitivity		-80	-70	dBm	0.1% BER

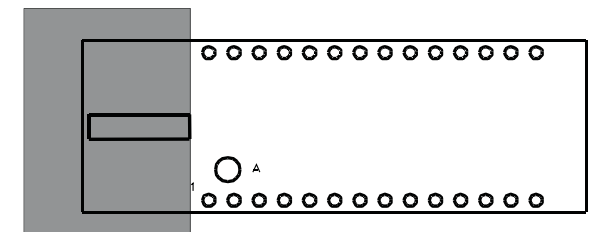
Application Information

Serial Port

The BlueControl serial port supports all Bluetooth defined standard baud rates between 2400 bps and 230400 bps. By default RTS/CTS hardware handshake is used.

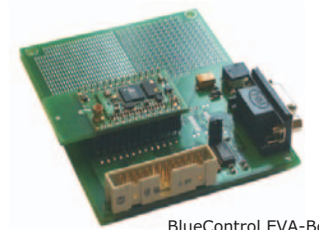
Antenna

When the internal antenna options is used make sure not to place any copper traces or ground plane underneath the antenna because this can severely degrade the RF performance of the device.



No traces within this area

BlueControl CL-I Bluetooth Class 1 Module



BlueControl EVA-Board
with BlueControl CL-1

The Transparent Cable Replacement

The BlueControl CLI module is the perfect solution for your wireless control and measurement application. It integrates a complete Bluetooth wireless solution in an easy to use dual in line package. An RS232 type serial port, digital I/Os, an optional I2C master interface and a PCM codec interface for voice applications are available.

In normal operation mode one RFCOMM channel is used to transfer data to / from the serial port. This is transparent to the application. A second RFCOMM channel can be used to control the digital I/Os and / or I2C operation. Future firmware releases may also support other protocols (like the HID protocol).

To configure the module for a specific application a developers kit is available. It comes with an easy to use software for configuration and evaluation of the BlueControl module. The developers kit is also compatible with industry standard software for advanced applications.

Some examples of possible applications follow:

- Commercial Systems, POS, Barcodescanner, printers, POS, CreditCard terminals
- Sensors and measurement devices, building technology
- Computer peripherals (Modem, ISDN, DSL, serial printer, Plotter, mobile phones + PDA)
- Industrial control, robotics, access control, parking lot control, signal controls
- Medical technology, analyses (Glukometer, Breathcontrol aso.)
- Military technology, save, non disturbish data/voice, target control systems, Telemetrics
- Embedded Systems, Mainboards, lock systems, Navigation systems
- Technical Service, system configuration (ex. phone/PBX systems, Diagnostic systems)
- Automotive, car diagnostics, CAN-Bus control

Key Features

- **Complete wireless solution including all Bluetooth protocol software components.**
- **Bluetooth Class 1, up to 100 meter range.**
- **Bluetooth Serial Port Profile**
transparent operation, no software modifications or programming needed
- **RS232 interface with 3.3 V level**
- **Up to 6 digital I/Os**
- **Optional I2C master interface**
- **PCM codec interface**
- **Internal or external antenna**
- **Regulated (3.3 Volt) or unregulated (4..10 Volt) power supply.**
- **Can supply regulated 3.3 Volt to external devices.**
- **DIL 28 standard package**

FEATURES

- Embedded Bluetooth® Protocol Stack
- Host or Client roles supported
- External Stub Antenna
(Allows mounting in metal case)
- Range up to 30m with Bluetooth® Class 2
- Range up to 100m with Bluetooth® Class 1
- Bluetooth 1.1 compliant

SERIAL INTERFACE

- Supported Baudrate 300-921Kbps

PROTOCOLS

- L2CAP
- SDP
- RFCOMM

BLUETOOTH® PROFILE

- Generic Access Profile (GAP)
- Service Discovery Profile (SDP)
- Serial Port Profile (SPP)
- LAN Access
- Dial Up Networking
- Fax