OEM Serial Port Adapter™

2nd Generation

Electrical & Mechanical Datasheet

connect*Blue*

OEM Serial Port Adapter™ 2nd Generation

Electrical & Mechanical Datasheet

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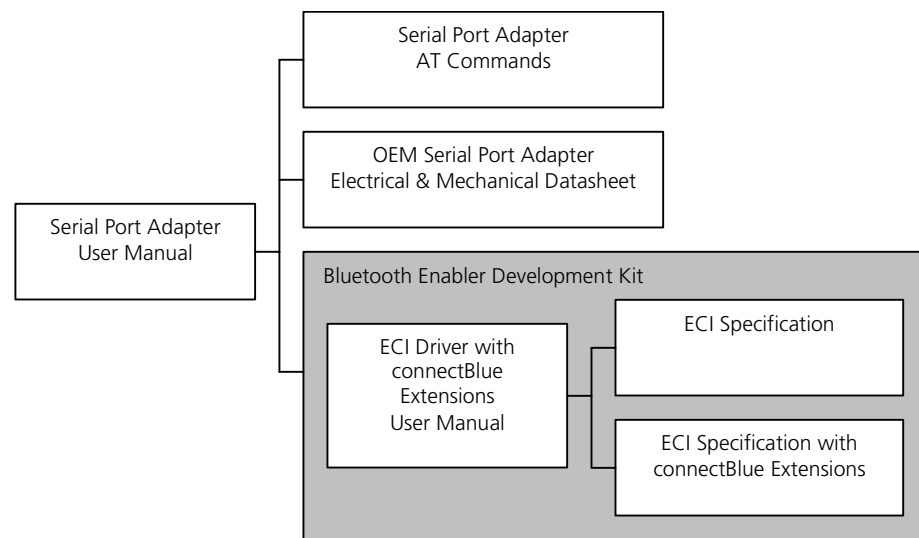
Contents

Chapter 1

Introduction

1.1   Related Documents

The picture below shows the relation between the different Serial Port Adapter documents.

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                              ┌──────────────────────────┐
                              │   Serial Port Adapter    │
                              │      AT Commands         │
                              └──────────────────────────┘

                              ┌──────────────────────────┐
                              │  OEM Serial Port Adapter │
                              │ Electrical & Mechanical  │
                              │        Datasheet         │
                              └──────────────────────────┘
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   │ Serial Port Adapter│   ┌───────────────────────────────────────────────┐
   │    User Manual     │   │ Bluetooth Enabler Development Kit              │
   └──────────────────┘   │                          ┌──────────────────┐ │
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                          │  │   User Manual    │    │ connectBlue Extensions│
                          │  └────────────────┘    └──────────────────┘ │
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1.2   Product Variants

This Electrical and Mechanical datasheet contains information about the second generation of OEM Serial Port Adapter. The design consists of two different modules cB-0701-01 (Class 2 / 1 mW / 0 dBm) and cB-0702-01 (Class 1 / 100 mW / 20 dBm).

Product Name	OEM Module ID	Type	Description
OEMSPA13i	cB-0701-01	Class 2 / 0 dBm	OEM Serial Port Adapter 13i with internal antenna
OEMSPA13x	cB-0701-01	Class 2 / 0 dBm	OEM Serial Port Adapter 13x with external antenna
OEMSPA33i	cB-0702-01	Class 1 / 20 dBm	OEM Serial Port Adapter 33i with internal antenna
OEMSPA33x	cB-0702-01	Class 1 / 20 dBm	OEM Serial Port Adapter 33x with external antenna

cB-0701-01

cB-0701-01 is a small size Bluetooth module based on the Infineon (former Ericsson) PBM 990 80 baseband controller and the PBA 313 05 0dBm radio.

The PBM 990 80 has 64 Kbytes on chip SRAM and 512 Kbytes FLASH stacked in the same package.

cB-0702-01

cB-0702-01 is a long-range versatile Bluetooth module based on the Infineon (former Ericsson) PBM 990 90 baseband controller and the PBA 313 02 20 dBm radio.
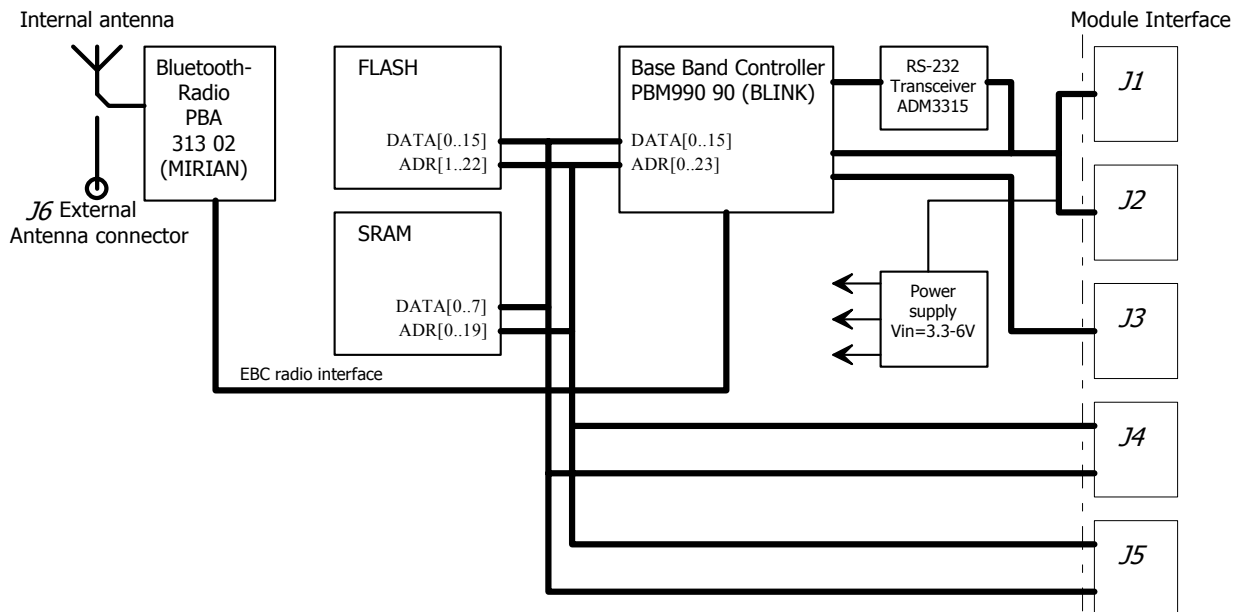
The PBM 990 90 has 64 Kbytes on chip SRAM, the FLASH is located in a separate package.

cB-0702-01 also contains external SRAM.

1.3 Block Diagram cB-0701-01
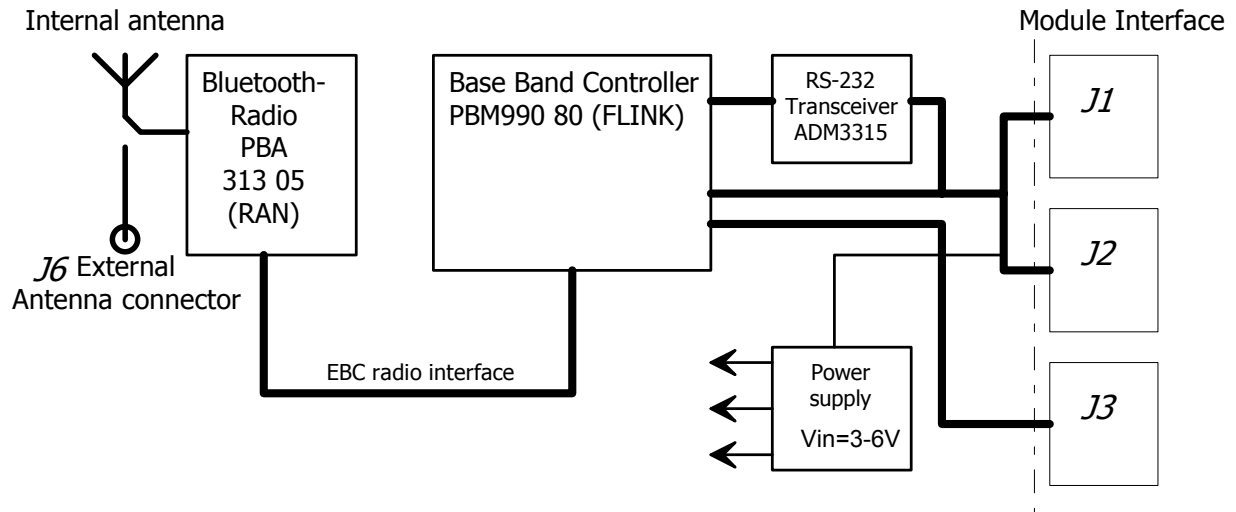
1.4 Block Diagram cB-0702-01

Chapter 2

Electrical Interface and Connectors

This section describes the signals available on the module interface connectors. There are two ways to connect to the OEM Serial Port Adapter, one is via the J1 connector, a 20-pin 2mm pitch pin header, and the other is via the board-to-board (one piece part) connector, J2 through J5.
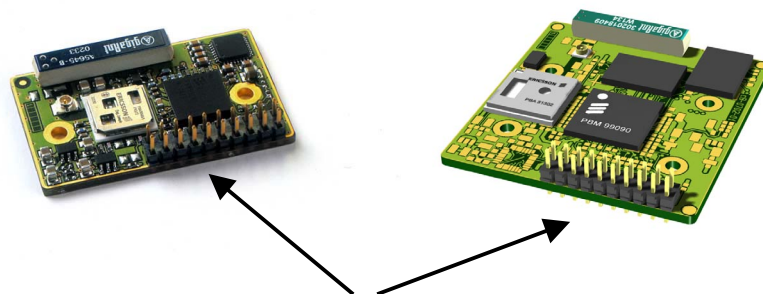
NOTE! J4 and J5 are only available on cB-0702-01

The J2 to J5 connectors on the OEM Serial Port Adapter exist on the module only as a mating PCB-layout pattern.

NOTE! Connectors J3 to J5 are for future use only and will not be covered in details by this document.

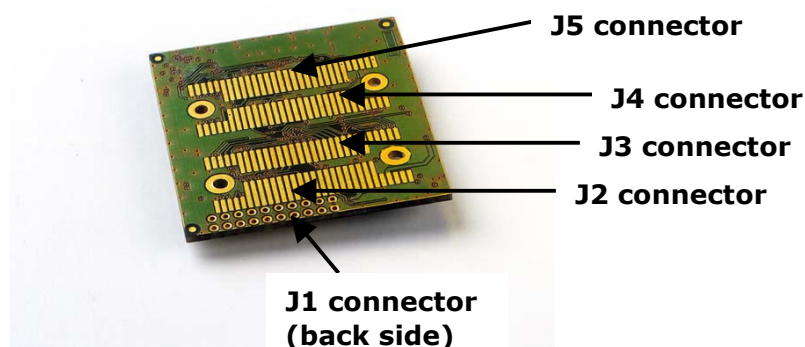**cB-0701-01 with J1**   **cB-0702-01 with J1**

J1 connector - 20-pin 2mm pitch pin header

CB-0702-01 with J2 to J5 (mating PCB-layout pattern)

J5 connector

J4 connector

J3 connector

J2 connector
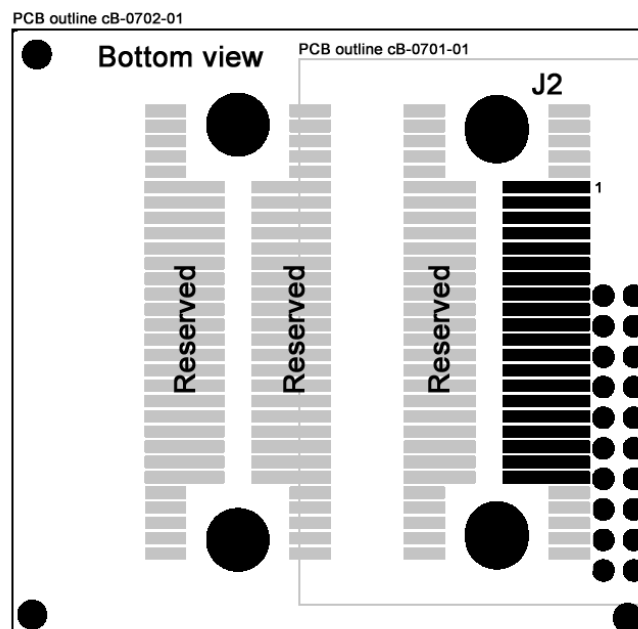
J1 connector (back side)
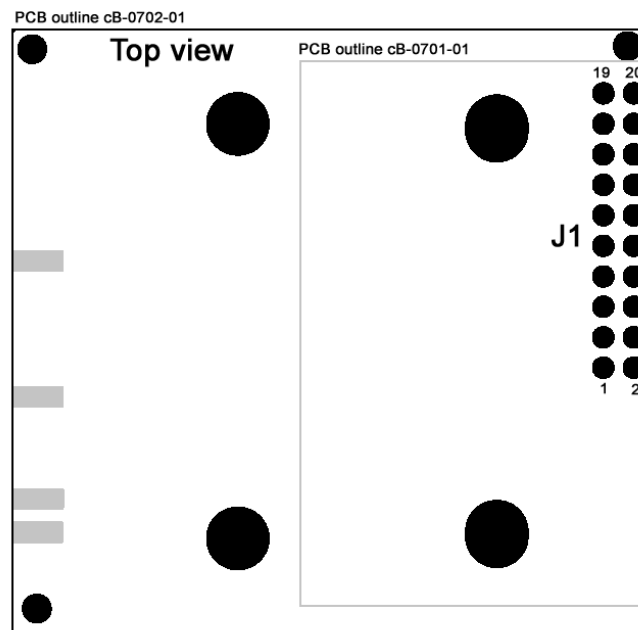
J1 connector

The figure above shows the pin numbering of the J1 connector.

J2 connector

The figure shows the bottom view of the two PCBs and the pinning of the J2 connector.

J2 motherboard connectors

A single-row connector may be used. A connector of the following type is recommended:

Samtec: SEI-120-02-GF-S-M-AB

The height of this connector is 1.65 mm.

Mother board footprint for single row module interface J2 Samtec type: SEI-120-02-GF-S-M-AB

PCB-outline cB-0701-01

PCB-outline cB-0702-01

2 x Ø2.5 mm

2 x Ø1.0 mm

1.35mm

26.62mm

0.56mm

0.5mm

3.81mm

1.0mm

1

4.0mm

5.84mm

4.69mm

6.69mm

10.0mm

A double-row connector may be used although all the pins needed to use are available on the J2 connector only. The connector is connected to the pins of the J2 and J3 connector. A double-row connector of the following type is recommended:
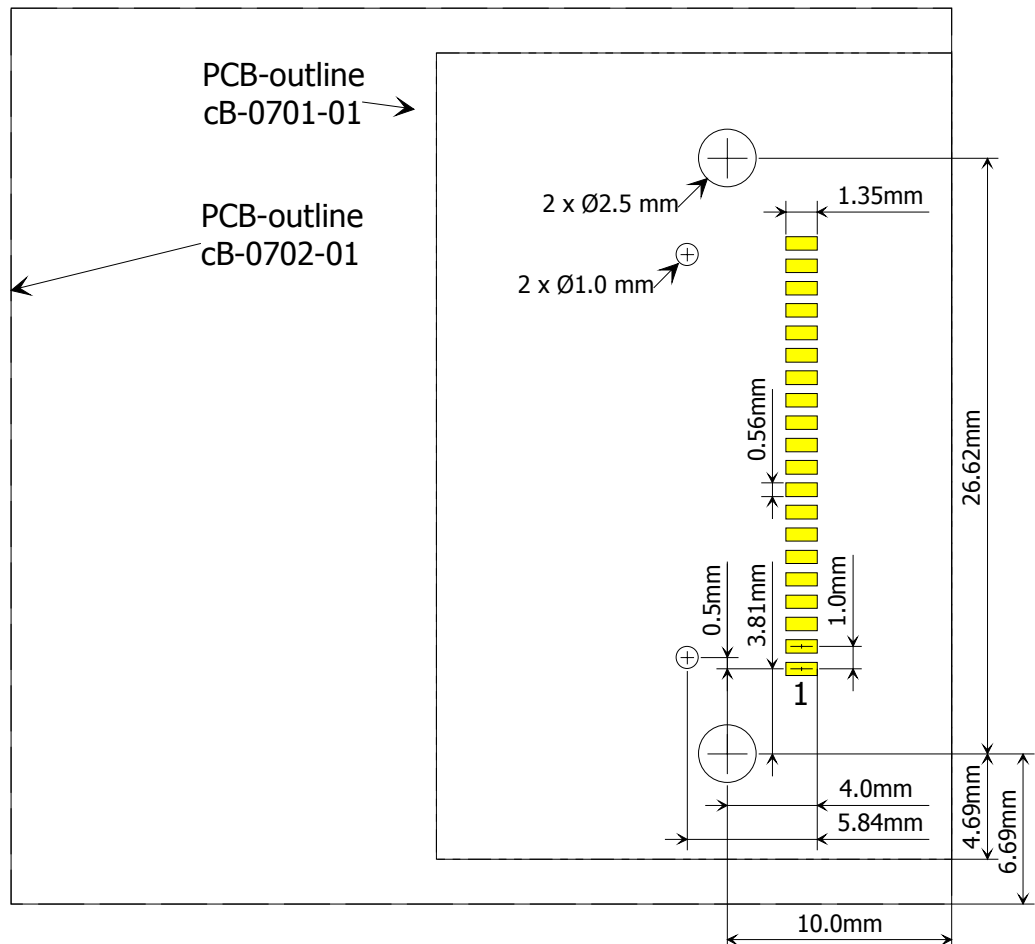
Samtec: FSI-120-03-G-D-M-AB

The height of this connector is 3.00 mm.

Mother board footprint for double row
module interface J2 & J3
Samtec type:
FSI-120-03-G-D-M-AB
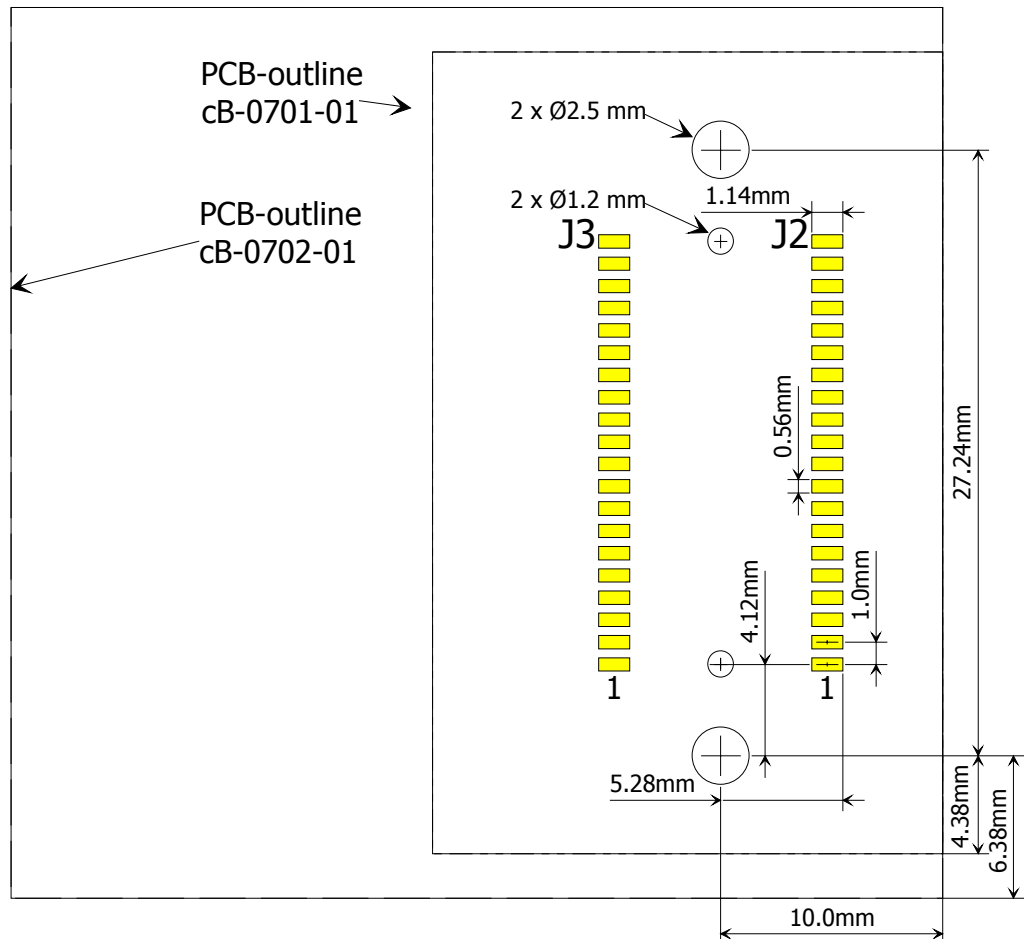
PCB-outline
cB-0701-01

PCB-outline
cB-0702-01

2 x Ø2.5 mm

2 x Ø1.2 mm

1.14mm

J3

J2

0.56mm

27.24mm

4.12mm

1.0mm

1

1

5.28mm

4.38mm

6.38mm

10.0mm

Other connector alternatives maybe used. Use the diagrams above for design help.

2.1   CMOS Logic Levels

The boards cB-0701-01 and cB-0702-01 has some signals that are defined as logic level CMOS signals. The boards are designed to be fully interchangeable between each other. This is possible if the host product has made space for the cB-0702-01 board. This makes it possible to choose freely between a class 1 or class 2 device without any change of the host product.

The following voltage conditions are valid.

Signal	Voltage level	Remark
Vin Low min	- 0.3 V	
Vin Low max	0.8 V	0.95 V if only cB-0702-01 is used
Vin High min	2.25 V	2.05 V if only cB-0701-01 is used
Vin High max	3.2 V	3.5 V if only cB-0702-01 is used
Vout Low max	0.1 V	
Vout High min	2.8 V	

2.2   Signals in J1 and J2 Connector

Maximum load on all In/Out is 3mA.

J1 & J2 Pin nr.	Pin Name	Signal Name	Signal Level	Type	Description
1	VSS	Ground	Ground		
2	VSS	Ground	Ground		
3	VCC_5V	Power	3.3V – 6V		If only cB-0701-01 is used the range 3.0V – 6.0V is allowed
4	VCC_5V	Power	3.3V – 6V		If only cB-0701-01 is used the range 3.0V – 6.0V is allowed
5	RS232-CTS	Clear To Send	RS232	Input	
6	RS232-TxD	Transmit Data	RS232	Output	
7	RS232-RTS	Request To Send	RS232	Output	
8	RS232-RxD	Receive Data	RS232	Input	
9	RS232-DTR	Data Terminal Ready	RS232	Output	
10	RS232-DSR	Data Set Ready	RS232	Input	Also used to control the power saving mode "stop mode". See chapter 2.4 for more information.
11	RED/Mode	Red LED output and Serial interface mode select input	CMOS	In/Out	The level on this pin during power up selects RS232 (High) or logic (Low) level UART-communication. **The Mode pin is only valid at startup and cannot be changed during operation.** **The Mode pin is internally pulled up i.e. RS232 mode is the default setting. Recommended value of the pull-down resistor is 10 kohm.** See section 2.5 for a design example.
12	Switch-0	Function switch	CMOS	In	Used for the "Connect on external signal" function, see the Serial Port Adapter user manual for more information on the Function switch. See section 2.5 for a design example.

J1 & J2 Pin nr.	Pin Name	Signal Name	Signal Level	Type	Description
13	GREEN/Switch-1	Green LED output and Restore switch	CMOS	In/Out	If the level on this pin is set to Low the units goes back to default serial settings. The "Restore Default" input is only active at unit power up. See the Serial Port Adapter user manual for more information on the Restore switch. See section 2.5 for a design example.
14	BLUE	Blue LED output	CMOS	Output	See section 2.5 for a design example.
15	UART1-CTS	Clear To Send	CMOS	Input	See Note 1 below.
16	UART1-TxD	Transmit Data	CMOS	Output	
17	UART1-RTS	Request To Send	CMOS	Output	
18	UART1-RxD	Receive Data	CMOS	Input	See Note 1 below.
19	UART1-DTR	Data Terminal Ready	CMOS	Output	
20	UART1-DSR	Data Set Ready	CMOS	Input	Also used to control "stop down mode". See chapter 2.4 for more information.

NOTE1! It is recommended to connect a "pull-up" resistor with the value 82 kohm to 2.8 VDC if UART1-CTS and/or UART-RxD are unconnected or may be left in an undefined state.

2.3 Signals in J3 – J5 Connector

These connectors are for future use and not covered by this document..
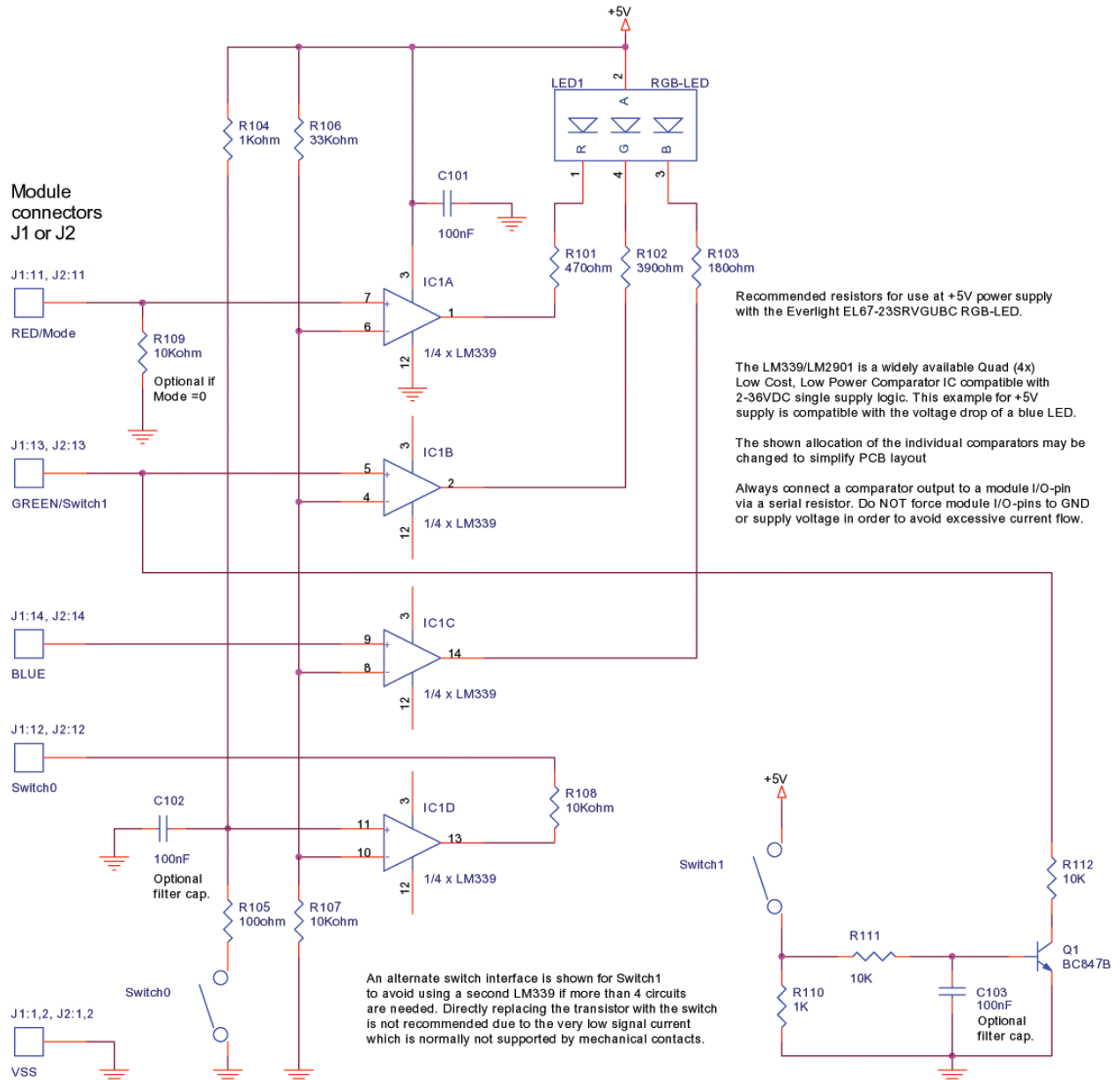
2.4 Power Control

The DSR signal on the UART and the RS232 interfaces may be used to control "stop mode". "Stop mode" is the most efficient power saving mode.

For more information about "stop mode", see the Serial Port Adapter User Manual.

2.5   Interfacing Examples

Example 1 – connection of input/output pins

Example 2 – Input/output pins connected to a Host CPU

It is recommended to use a serial resistance with a 10 kohm value between the host CPU and the connectBlue module for all input and output pins.

NOTE! The RED/Mode pin is a combined output/input pin. The Mode input is only active at power up of the unit.

NOTE! The GREEN/Switch 1 pin is a combined output/input pin. The Switch 1 input is only active at power up of the unit.

Chapter 3

Temperature Information

In the tables below you find information about the different temperature conditions.

CB-0701-01

Storage temperature	-40 - +85 °C
Recommended operating temperature	-20 - +75 °C
Maximum operating temperature	-30 - +75 °C

CB-0702-01

Storage temperature	-40 - +85 °C
Recommended operating temperature	-30 - +55 °C
Maximum operating temperature	-30 - +75 °C

Chapter 4

Bluetooth Information

In the tables below you find information about product Bluetooth properties.

CB-0701-01

Bluetooth Radio	Infineon/Ericsson PBD 313 05 (RAN)
Bluetooth Base Band Controller	Infineon/Ericsson PBM 990 80 (FLINK)
RF Output power	Class 2, min –2dBm type 1.5dBm max +4dBm
Receive sensitive level	-80dBm (0.1% BER)
Receive input level (Max)	Max +14 dBm
Output frequency	2.4 –2.5 GHz, ISM band.
Point to multi-point operation	Yes
Bluetooth stack	Embedded Host Stack
Bluetooth qualification	1.1

CB-0702-01

Bluetooth Radio	Infineon/Ericsson PBD 313 02 (MIRIAN)
Bluetooth Base Band Controller	Infineon/Ericsson PBM 990 90 (BLINK)
RF Output power	Class 1, min –28dBm, max +17dBm
Receive sensitive level	-80dBm (0.1% BER)
Receive input level (Max)	Max +15 dBm
Output frequency	2.4 –2.5 GHz, ISM band.
Point to multi-point operation	Yes
Bluetooth stack	Embedded Host Stack
Bluetooth qualification	1.1

Power Consumption

NOTE! The power consumption depends on the UART speed chosen.

CB-0701-01 (up to 57,6 kBits/s UART baud rate)

Input power is 5 VDC. No external LEDs are connected. UART baud rates up to 57,6 kBits/s.

Input voltage : 5V Baudrate <= 57,6	no load on output signals RS232 circuit enabled	logic level UART signals loaded (Tx, Rx) RS232 circuit disabled	RS232 signals loaded (Tx, RTS, DTR, @3000 ohm/signal) RS232 circuit enabled
not connected, not connectable, not discoverable	typical mean (mA) : 26.2 typical max (mA) : 26.8	typical mean (mA) : 25.2 typical max (mA) : 25.2	typical mean (mA) : 50.1 typical max (mA) : 50.2
not connected, not connectable, not discoverable, **stop mode enabled**	typical mean (mA) : 0.7 typical max (mA) : 1.4	typical mean (mA) : 0.6 typical max (mA) : 0.7	typical mean (mA) : 24.5 typical max (mA) : 24.6
not connected, **connectable**, not discoverable	typical mean (mA) : 27.4 typical max (mA) : 88.5	typical mean (mA) : 27.2 typical max (mA) : 86.6	typical mean (mA) : 50.7 typical max (mA) : 106.9
not connected, connectable, not discoverable, **stop mode enabled**	typical mean (mA) : 1.1 typical max (mA) : 87.1	typical mean (mA) : 1.1 typical max (mA) : 86.2	typical mean (mA) : 25.3 typical max (mA) : 107.9
not connected, **connectable, discoverable**	typical mean (mA) : 27.9 typical max (mA) : 88.7	typical mean (mA) : 27.8 typical max (mA) : 86.6	typical mean (mA) : 51.1 typical max (mA) : 107.1
not connected, connectable, discoverable, **stop mode enabled**	typical mean (mA) : 2.3 typical max (mA) : 87.2	typical mean (mA) : 2.3 typical max (mA) : 86.8	typical mean (mA) : 26.0 typical max (mA) : 107.8
connected idle, connectable, not discoverable	typical mean (mA) : 35.8 typical max (mA) : 104.7	typical mean (mA) : 35.6 typical max (mA) : 107.9	typical mean (mA) : 58.6 typical max (mA) : 126.5
connected send data, connectable, not discoverable	N/A	typical mean (mA) : 52 typical max (mA) : 106.4	typical mean (mA) : 65 typical max (mA) : 126.5

CB-0701-01 (higher than 57,6 kBits/s UART baud rate)

Input power is 5 VDC. No external LEDs are connected. UART baud rates higher than 57,6

Input voltage : 5V Baudrate > 57,6	no load on output signals RS232 circuit enabled	logic level UART signals loaded (Tx, Rx) RS232 circuit disabled	RS232 signals loaded (Tx,RTS, DTR @3000 ohm/signal) RS232 circuit enabled
not connected, not connectable, not discoverable	typical mean (mA) : 60.8 typical max (mA) : 61.4	typical mean (mA) : 61.0 typical max (mA) : 61.0	typical mean (mA) : 83.6 typical max (mA) : 83.6
not connected, not connectable, not discoverable, **stop mode enabled**	typical mean (mA) : 0.8 typical max (mA) : 1.6	typical mean (mA) : 0.6 typical max (mA) : 1.3	typical mean (mA) : 24.5 typical max (mA) : 24.6
not connected, **connectable**, not discoverable	typical mean (mA) : 63.9 typical max (mA) : 120.5	typical mean (mA) : 64.2 typical max (mA) : 123.5	typical mean (mA) : 86.7 typical max (mA) : 142.6
not connected, connectable, not discoverable, **stop mode enabled**	typical mean (mA) :1.6 typical max (mA) : 88.7	typical mean (mA) : 1.5 typical max (mA) : 87.1	typical mean (mA) : 25.3 typical max (mA) : 107.9
not connected, **connectable**, **discoverable**	typical mean (mA) : 64.3 typical max (mA) : 121.0	typical mean (mA) : 64.7 typical max (mA) : 123.5	typical mean (mA) : 87.1 typical max (mA) : 154.6
not connected, connectable, discoverable, **stop mode enabled**	typical mean (mA) : 2.4 typical max (mA) : 88.4	typical mean (mA) : 2.6 typical max (mA) : 92.0	typical mean (mA) : 26.0 typical max (mA) : 107.4
connected idle, **connectable**, not discoverable	typical mean (mA) : 73.3 typical max (mA) : 141.0	typical mean (mA) : 73.8 typical max (mA) : 155.0	typical mean (mA) : 96.0 typical max (mA) : 172.1
connected send data, **connectable**, not discoverable	N/A	typical mean (mA) : 87.6 typical max (mA) : 156.3	typical mean (mA) : 100 typical max (mA) : 173

kBits/s.

CB-0702-01 (up to 57,6 kBits/s UART baud rate)

Input voltage : 5V Baudrate <= 57,6	no load on output signals RS232 circuit enabled	logical level UART signals loaded (Tx, Rx) RS232 circuit disabled	RS232 signals loaded (Tx, RTS, DTR, @3000 ohm/signal) RS232 circuit enabled
not connected, not connectable, not discoverable	typical mean (mA) : 17.6 typical max (mA) : 20.8	typical mean (mA) : 17.5 typical max (mA) : 19.1	typical mean (mA) : 32.6 typical max (mA) : 36.6
not connected, not connectable, not discoverable, **stop mode enabled**	typical mean (mA) : 0.5 typical max (mA) : 7.4	typical mean (mA) : 0.5 typical max (mA) : 6.2	typical mean (mA) : 16.3 typical max (mA) : 20.2
not connected, **connectable**, not discoverable	typical mean (mA) : 18.7 typical max (mA) : 65.6	typical mean (mA) : 19.0 typical max (mA) : 65.0	typical mean (mA) : 33.6 typical max (mA) : 81.3
not connected, connectable, not discoverable, **stop mode enabled**	typical mean (mA) : 0.7 typical max (mA) : 22.3	typical mean (mA) : 0.6 typical max (mA) : 22	typical mean (mA) : 16.6 typical max (mA) : 81.8
not connected, **connectable**, **discoverable**	typical mean (mA) : 18.7 typical max (mA) : 65.6	typical mean (mA) : 18.9 typical max (mA) : 64.8	typical mean (mA) : 33.6 typical max (mA) : 81.1
not connected, connectable, discoverable, **stop mode enabled**	typical mean (mA) : 1.0 typical max (mA) : 22.4	typical mean (mA) : 0.5 typical max (mA) : 21.7	typical mean (mA) : 16.9 typical max (mA) : 82.2
connected idle, **connectable**, not discoverable	typical mean (mA) : 27.3 typical max (mA) : 172.9	typical mean (mA) : 26.9 typical max (mA) : 172.1	typical mean (mA) : 43.0 typical max (mA) : 193.5
connected send data, **connectable**, not discoverable	N/A	typical mean (mA) : 35 typical max (mA) : 172.6	typical mean (mA) : 50.0 typical max (mA) : 194

Input power is 5 V. No external LEDs are connected. UART baud rates up to 57,6 kBits/s.

CB-0702-01 (higher than 57,6 kBits/s UART baud rate)

Input voltage : 5V Baudrate > 57,6	no load on output signals RS232 circuit enabled	logical level UART signals loaded (Tx, Rx) RS232 circuit disabled	RS232 signals loaded (Tx,RTS, DTR @3000 ohm/signal) RS232 circuit enabled
not connected, not connectable, not discoverable	typical mean (mA) : 39.7 typical max (mA) : 40.1	typical mean (mA) : 39.6 typical max (mA) : 39.7	typical mean (mA) : 53.6 typical max (mA) : 53.6
not connected, not connectable, not discoverable, **stop mode enabled**	typical mean (mA) : 0.6 typical max (mA) : 7.3	typical mean (mA) : 0.4 typical max (mA) : 5.7	typical mean (mA) : 16.3 typical max (mA) : 18.9
not connected, **connectable**, not discoverable	typical mean (mA) : 41.7 typical max (mA) : 89.3	typical mean (mA) : 41.2 typical max (mA) : 87.9	typical mean (mA) : 55.6 typical max (mA) : 105.3
not connected, connectable, not discoverable, **stop mode enabled**	typical mean (mA) : 0.9 typical max (mA) : 65.0	typical mean (mA) : 1.1 typical max (mA) : 66.1	typical mean (mA) : 16.5 typical max (mA) : 82.3
not connected, **connectable**, **discoverable**	typical mean (mA) : 42.1 typical max (mA) : 88.1	typical mean (mA) : 42.0 typical max (mA) : 87.6	typical mean (mA) : 56.0 typical max (mA) : 105.7
not connected, connectable, discoverable, **stop mode enabled**	typical mean (mA) : 1.3 typical max (mA) : 66.0	typical mean (mA) : 1.1 typical max (mA) : 66.2	typical mean (mA) : 17.3 typical max (mA) : 82.4
connected idle, **connectable**, not discoverable	typical mean (mA) : 49.6 typical max (mA) : 212.3	typical mean (mA) : 49.2 typical max (mA) : 211.5	typical mean (mA) : 65.4 typical max (mA) : 234.6
connected send data, **connectable**, not discoverable	N/A	typical mean (mA) : 78 typical max (mA) : 214.3	typical mean (mA) : 94.0 typical max (mA) : 237.5

Input power is 5 V. No external LEDs are connected. UART baud rates higher than 57,6 kBits/s.

Chapter 6

Antennas

There are 2 different antenna options available:

- An internal surface mounted (SMD) antenna.

- An "antenna on a cable" maybe connected to a U.FL connector. Three different "antennas on a cable" are available.

See chapter about Mounting for more info about antenna placement.

This chapter gives only an overview of the qualities of the different antenna options. More detailed information is available in the antenna data sheets.

6.1 Surface Mounted Antenna (internal)

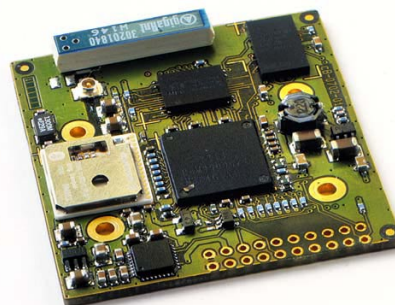The unit cannot be mounted in a metal-shielded enclosure with this antenna.

cB-0701-01

Polarization   Linear
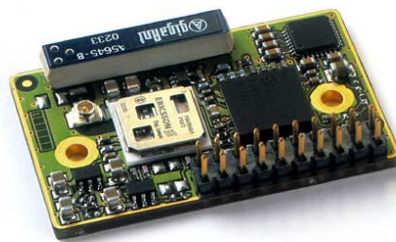
cB-0702-01

Polarization   Linear

6.2 Antennas on a Cable (external antennas)

The external antennas are connected to the board through a U.FL connector. Some of the antennas are connected directly to the U.FL connector of the board and some is connected using a SMA connected through a short U.FL to SMA adapter cable.

Antenna Accessories

Part number	cB-ACC-18
Name	U.FL to SMA adapter cable
Connector	U.FL and SMA

Comment	The SMA connector maybe mounted in a panel. The length is of the cable is 12 cm.

Antennas

Part number	cB-ACC-16
Name	WCR-2400-SMA
Type	½ wave dipole
Polarization	Vertical
Size	10 cm
Connector	SMA

Comment	To be mounted on the UF.L to SMA adapter cable.

Part number	cB-ACC-17
Name	Puck Antenna
Type	
Polarization	
Size	70 mm in diameter.
Connector	SMA

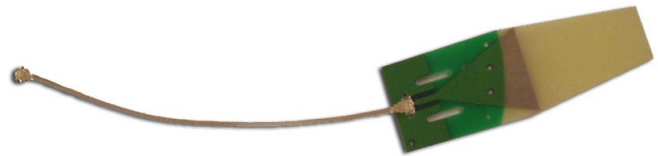|	
Comment	To be mounted on the UF.L to SMA adapter cable. The antenna is mounted with a 16 mm hole through a cabinet wall or ceiling.

Part number	cB-ACC-19
Name	CAP24235 (Microblue)
Type	Microstrip
Polarization	Linear
Size	21x60 mm. 20 cm cable.
Connector	U.FL
Comment	Connected directly to the U.FL connector on OEM board.

Part number	cB-ACC-20
Name	CAF94146 Microsphere
Type	Microstrip
Polarization	Linear
Size	46x30 mm. 2.5 mm high. 20 cm cable.
Connector	U.FL

|	
Comment	Connected directly to the U.FL connector on OEM board. Delivered with a mounting kit.

Chapter 7

Additional Mounting Instructions

7.1   Antenna Issues

The unit cannot be mounted arbitrary, because of the radio communication. The unit with an internal surface mounted antenna cannot be mounted in a metal enclosure. If a metal enclosure is required, one of the external antenna options has to be used.

Use one of the external antenna options if you are using a metallic enclosure or if there are other reasons why the internal antenna cannot be used. See section 6.2 for more information on the antenna options available.
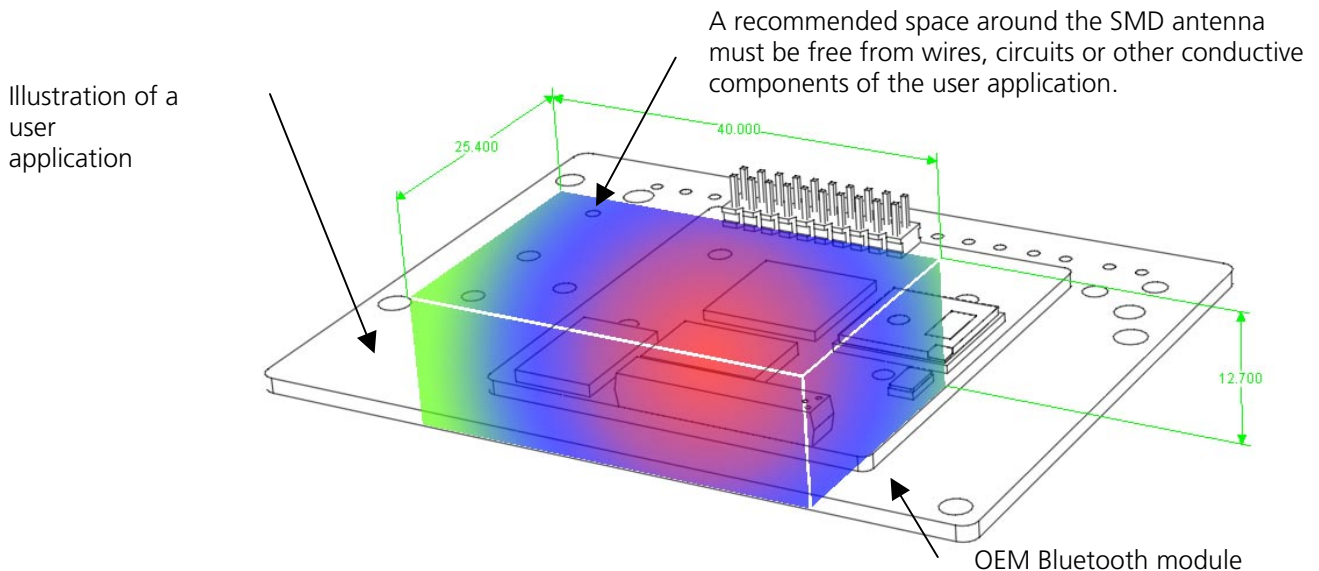
7.2   Traces and Component Keep out Area

The 20-pin 2 mm pitch pin connector (J1) sticks out 1.2 mm below the bottom side of the Serial Port boards.

It is recommended to keep traces and components out of this area on the motherboard or keep a safe distance between the motherboard and the Serial Port Adapter board (> 1.6 mm).

See chapter 8.1 for detailed measurements and positions for the J1 connector.

7.3   Using the 20-pin 2 mm Pitch Pin Connector

If you mount the boards on a motherboard using the mounting holes, distances must be used that is higher than 1.6 mm, this due to the pins of the J1 connector (see chapter 7.2).

Chapter 2 contains more information about the connector and the electrical interface.

7.4 Using Board-to-Board Connectors

Reserved Area

Make place for the 20-pin 2 mm pitch pin connector as indicated in chapter 7.2. This allows you to use a standard connectBlue OEM Serial Port Adapter even tough you are not using this connector. Contact connectBlue if there is a requirement to used this reserved area for components.

Using the SEI-120-02-GF-S-M-AB Connector from Samtec

This connector has a profile height of 1.65 mm and this has to be considered if components are to be mounted on the motherboard under the Serial Port Adapter board.

The connector has 2 mm threaded inserts that fit with the mounting holes in the board. You may screw the Serial Port board directly into this inserts. If you want to have a tighter and more secure mounting you may use longer screws and secure it using a nut on the backside of the motherboard.

Chapter 2 contains more information about the connector, necessary measurements on the motherboard and the electrical interface.

Using the FSI-120-03-G-D-M-AB connector from Samtec

This connector has a height of 3.0 mm and this has to be considered if components are to be mounted on the motherboard under the Serial Port Adapter board.

The connector has 2 mm threaded inserts that fit with the mounting holes in the board. You may screw the Serial Port board directly into this inserts. If you want to have a tighter and more secure mounting you may use longer screws and secure it using a nut on the backside of the motherboard.
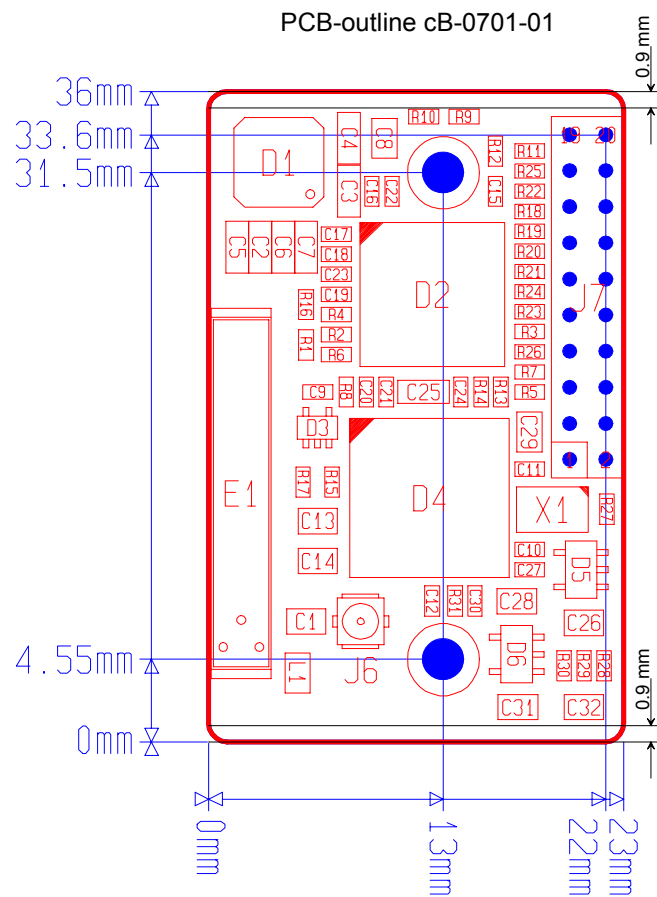
Chapter 2 contains more information about the connectors, mounting measurements and the electrical interface.
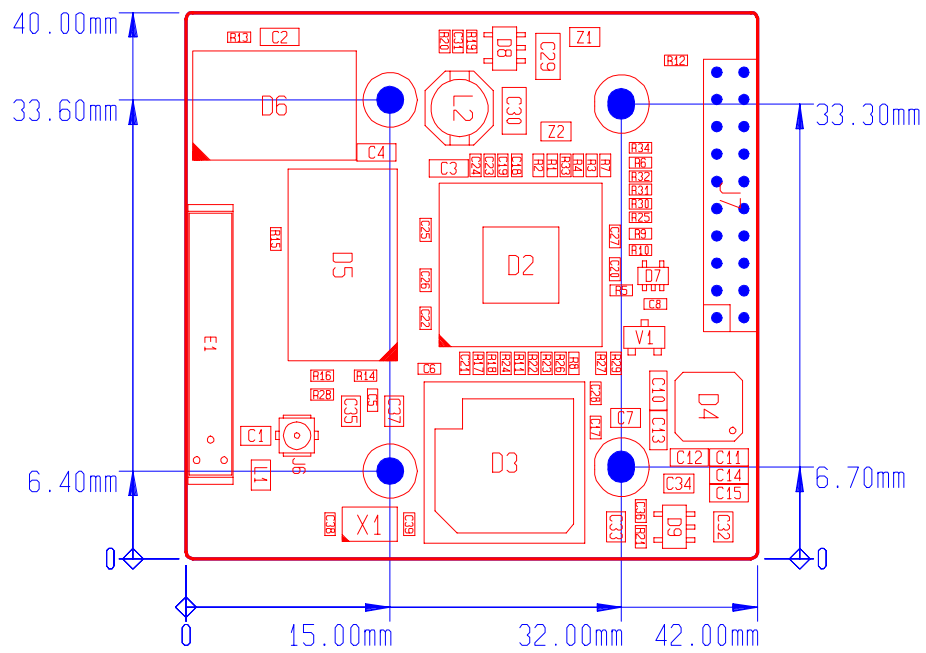
Chapter 8

Mechanics

8.1   Board Outlines

The smaller board cB-0701-01 is 36x23x1.45 mm. The larger board is 40x42x1.45 mm. The height of the module is maximum 5 mm. No components are mounted on the secondary side of the module.

PCB-outline cB-0701-01

PCB-outline cB-0702-01

Chapter 9

Regulatory Information

NOTE! Regulatory certification is in progress.

9.1   Declaration of Conformity

C€ ⓘ

We, **connectBlue AB**, of
Stora Varvsgatan 11 N:1
SE-211 19 Malmö, Sweden

declare under our sole responsibility that our products:

OEM Serial Port Adapter 13i, cB-0032-01, OEM Serial Port Adapter 13x, cB-0033-01
OEM Serial Port Adapter 33i, cB-0034-01, OEM Serial Port Adapter 33x, cB-0035-01
Serial Port Adapter 12i, cB-0036-01, Serial Port Adapter 32i, cB-0037-01
Serial Port Adapter 33i, cB-0041-01, Serial Port Adapter 33c, cB-0038-01
Rugged Serial Port Adapter 32s, cB-0039-01, OEM Module Adapter 2, cB-0040-01

to which this declaration relates, conforms to the following product specifications:

R&TTE Directive 1999/5/EC

EN 300 328-2 V1.1.1 (2000-07)

EMC Directive: 89/336/EEC

EN 301 489-1 V1.3.1 (2001-09)

EN 301 489-17 V1.1.1 (2000-09)

Low Voltage Directive: 73/23/EEC

EN 61131-2

Medical Electrical Equipment

IEC 60601-1-2

A notification must be made to each of the **national authorities responsible for radio spectrum management of the intention to place radio equipment that uses frequency bands whose use is not harmonized throughout the EU, on its national market.**

More information at: *http://europa.eu.int/comm/enterprise/rtte/gener.htm*

9.2 FCC Compliance

FCC Statement for cB-0701-01

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Labeling Requirements for End Product

For an end product using the OEM Serial Port Adapter or the OEM Bluetooth Enabler there must be a label containing, at least, the following information:

```
This device contains
FCC ID: PVH070101
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The label must be affixed on an exterior surface of the end product such that it will be visible upon inspection in compliance with the modular approval guidelines developed by the FCC.

In addition, the user manual for the end product must contain the following information:

"This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

Antenna

When using the module equipped with the external antennas as described previously the antenna is fixed and cannot be removed or replaced by the end user.

Caution

Any changes or modifications NOT explicitly APPROVED by connectBlue AB could cause the module to cease to comply with FCC rules part 15, and thus void the user's authority to operate the equipment.

FCC Statement for cB-0702-01

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Labeling Requirements for End Product

For an end product using the OEM Serial Port Adapter or the OEM Bluetooth Enabler there must be a label containing, at least, the following information:

> This device contains
> FCC ID: PVH070201

The label must be affixed on an exterior surface of the end product such that it will be visible upon inspection in compliance with the modular approval guidelines developed by the FCC.

In addition, the user manual for the end product must contain the following information:

"This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

Antenna

When using the module equipped with the external antennas as described previously the antenna is fixed and cannot be removed or replaced by the end user.

Caution

Any changes or modifications NOT explicitly APPROVED by connectBlue AB could cause the module to cease to comply with FCC rules part 15, and thus void the user's authority to operate the equipment.