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1 Description

The PANMOD is a Bluetooth Modul based on the Class 2, Panasonic Bluetooth prequallified Standard modul PAN1440.

General PANMOD Features :

- Single 3.3V +/-5% input voltage
- -25°C to +85°C operating and -40°C to +85°C storage temperature range
- Various Software Interfaces are available : HCI, Stollmann AT, Zerial AT
- Based on Bluetooth V1.2 prequallified Class 2 PAN1440 Bluetooth modul
  Bluetooth ID : B01839
- HW configurable RS232 or USB 2.0 Interface
- RS232 with UART level (3.3V)
- HW configurable for internel or externel (U.FL connector) antenna
- PI-Pad antenna matching network to adapt the internel antenna to different surroundings
- 10 pin FCC zero force connector

2 General PANMOD configuration

2.1 PANMOD Connector

CON1 Pin	Signal	Type	Remark
1	**CTS**	**IN**	**valid only in RS232 mode**
2	**RXD** USB+	**IN** USB	**RS232 mode** USB mode
3	**TXD** USB+	**OUT** USB	**RS232 mode** USB mode
4	**RTS**	**OUT**	**valid only in RS232 mode**
5	**RESET-**	**IN**	**low activ, t_{activ} > 5ms**
6	**BBACTIV** DCD GPIO15	**OUT** OUT I/O	**H : Baseband activity (HCI)** DCD with Stollmann SPP TBD
7	**WAKEUPHOST**	**OUT**	**HCI : Wake up Host**
8	**WAKEUPBT** GPIO03	**IN** I/O	**HCI : Wake up Bluetooth in RS232 mode** TBD
9	**VCC**	**IN**	**3.3V +/- 5%**
10	**GND**	**-**	**Ground**

2.2 UART - USB

With HCI software the hardware interface can be configured for USB or RS232 mode. With non HCI Software only RS232 mode is possible.

Part	RS232 mode	HCI mode	Remark
R2	**open**	1k0O	USB mode
R5	**open**	1k5O	USB mode
R7	**1K0O**	open	RS232 mode
R13	**0O**	open	connect RXD to CON1 Pin 2
R14	**0O**	open	connect TXD to CON1 Pin 3
R15	**open**	0O	connect USB+ to CON1 Pin 2
R16	**open**	0O	connect USB- to CON1 Pin 3

bold : settings for PANMOD V3

2.3 HCI WakeUp Bluetooth

When in HCI mode and the deep sleep mode is enabled this signal can be used to wake up the Bluetooth from deep sleep mode before sending data to the UART interface. To have the ability to define both initial state R9 and R10 are given.

2.4 HCI Base Band activ / Stollmann-SPP DCD

Part	Stollmann SPP DCD	HCI	Remark
R3	open	**0O**	GPIO_4 to CON1 Pin 6
R11	0O	**open**	GPIO_15 to CON1 Pin 6

bold : settings for PANMOD V3

2.5 Antenna Type and Matching Network

To select internel or externel antenna use see table below.

Part	Int. Antenna	Ext. Antenna	Remark
C3	**0.5pF**	open	Pi-Pad : value for Charon
C4	**10pF**	open	Pi-Pad : value for Charon
C5	**1.5nH**	open	Pi-Pad : value for Charon
ANT1	**set**	open	Internel antenna
C6	**open**	2pF	U.FL selector
U.FL	**open**	set	U.FL connector

bold : settings for PANMOD V3

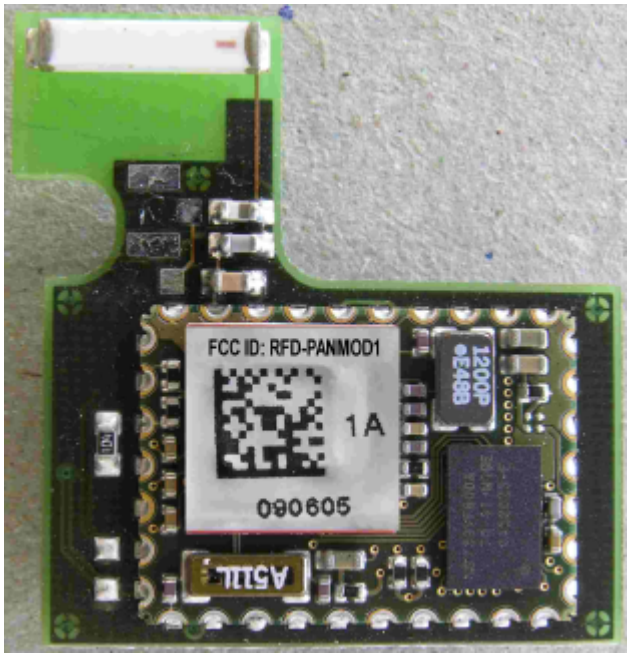
2.6 LED's

LED1 shows when lighting the running state of the ARM7 processor.
LED2 shows in HCI mode the state of the base band activity.

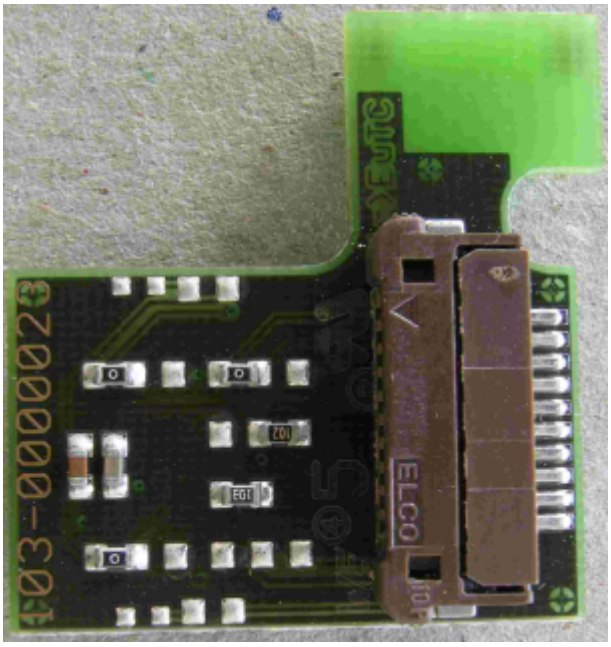
3 PANMOD V3 configuration

- HCI Software Interface
- RS232 HW Interface with TXD, RXD, RTS, CTS
- HCI Base Band activity om CON1 Pin 6
- Internel antenna with matching network
- No LED`s are populatet

3.1 Picture



Bottom



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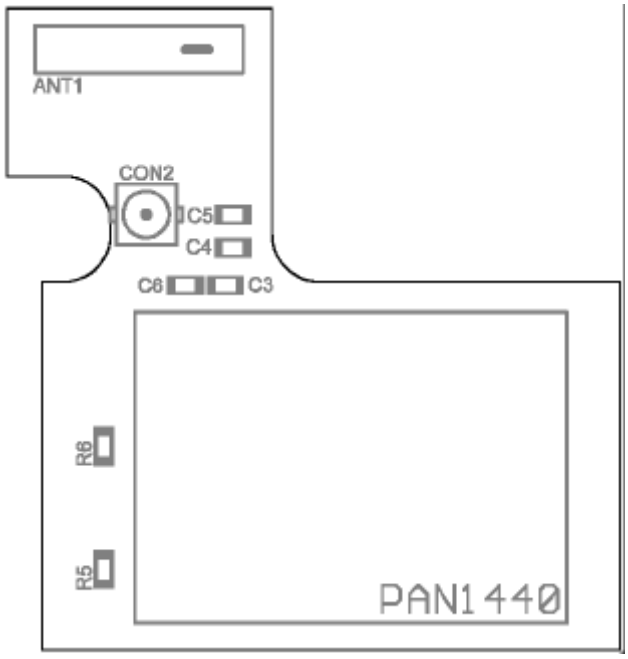
3.2 Component Placement



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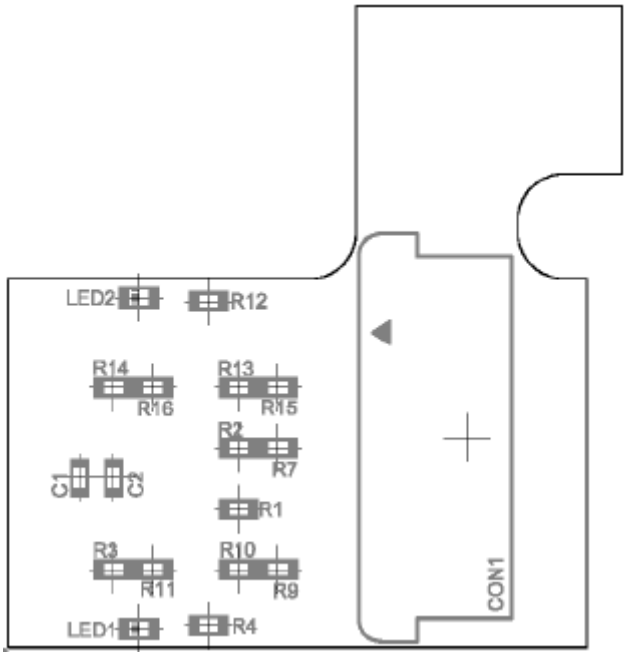

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4 FCC Compliance

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.

4.1 Labeling Requirements for End Product

The PANMOD is labled with it's own FCC ID number *RFD-PANMOD1*.
For the end product which contains the PANMOD V3 there must be a lable containing, at least the following information :

This device contains FCC ID: RFD-PANMOD1

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.

4.2 RF-exposure Statement

The antenna shown in this filing must not be co-located or operated in conjunction with any other antenna or transmitter. End users may not be provided with the module installation instructions. OEM integrators and end users must be provided with transmitter operating conditions for satisfying RF exposure compliance.

For portable applications OEM integrators need no SAR evaluation. The max source-based time-averaged output of 1.17 mW is below the low threshold of 24mW for d < 2.5 cm.

Use only the supplied or approved antenna. Unauthorized antennas, modifications or attachments could damage the terminal and may contravene local RF emission regulations or invalidate type approval.