

# Manual

## BlueNiceCom III V1.4

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## 1 General

### BlueNiceCom III Bluetooth-Modul with UART-interface and integrated Chip-antenna

- Bluetooth Class 2 Modul
- Serial Port Profile (SPP)
- UART interface
- Integrated chip-antenne
- GAP & SDP support



*AMBER wireless* provides with the BlueNiceCom III a Bluetooth-module with an integrated chip-antenna, based on LMX9820 from National Semiconductor. This compact and inexpensive Bluetooth-version is qualified for a serial data transmission.

BlueNiceCom III comes with a SPP profile (Serial Port Profile) and works with other Bluetooth modules which support the same profile. Through the serial UART interface the BlueNiceCom will be connected to a processor or a direct to a system, according to the application.

Via an external processor or host (PC) all further available application profiles could be set on the SPP-profile, for example: Dial up Networking Profile, Fax Profile, LAN Access Profile.

The module has an integrated chip-antenna and can placed into a circuit like a SMD-part.

The controlling and setting is raised by a host processor. The module can be integrated easily in a system. According to the application and the settings the BlueNiceCom II can be work as a stand-alone-slave-module.

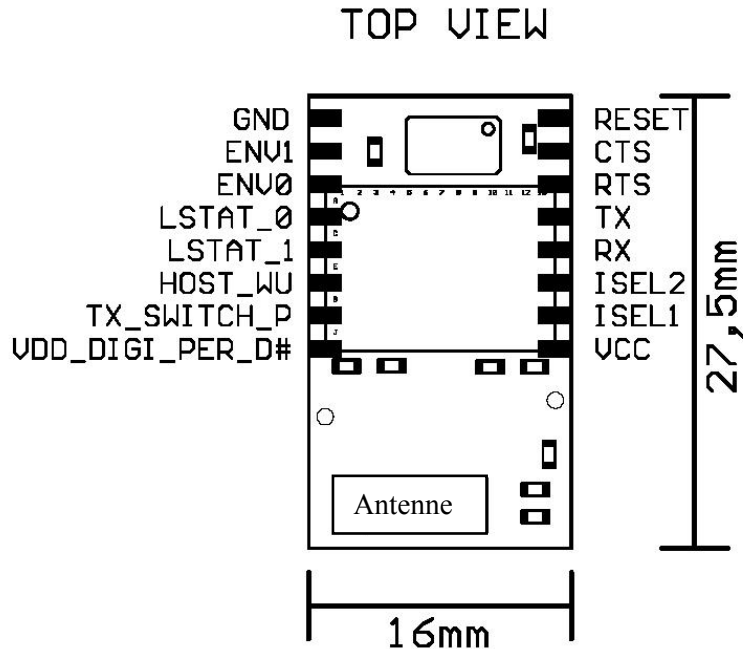
For a cable replacement or a point-to-multipoint (piconet) application a controlling through a processor is necessary. Up to 3 slaves could be managed by a master module.

## 2 Technical data:

Voltage supply	2,85V to 3,6V
Current consumption	typ. 65 mA
RF output	typ. 0 dBm
Rx Sensitivity	typ. -77dBm
Datarate UART:	9,6 kbps to 115kbps
Interface	according to LMX9820
Operating temperature	-10° bis +55°, optional an extended temperature range is possible
Dimension	27,5 x 16 x 3,5 mm
Miscellaneous	All further technical datas according to the LMX9820 Modul of National Semiconductor

**Order number**                      **BlueNiceCom III**

### 3 Pin assignment :



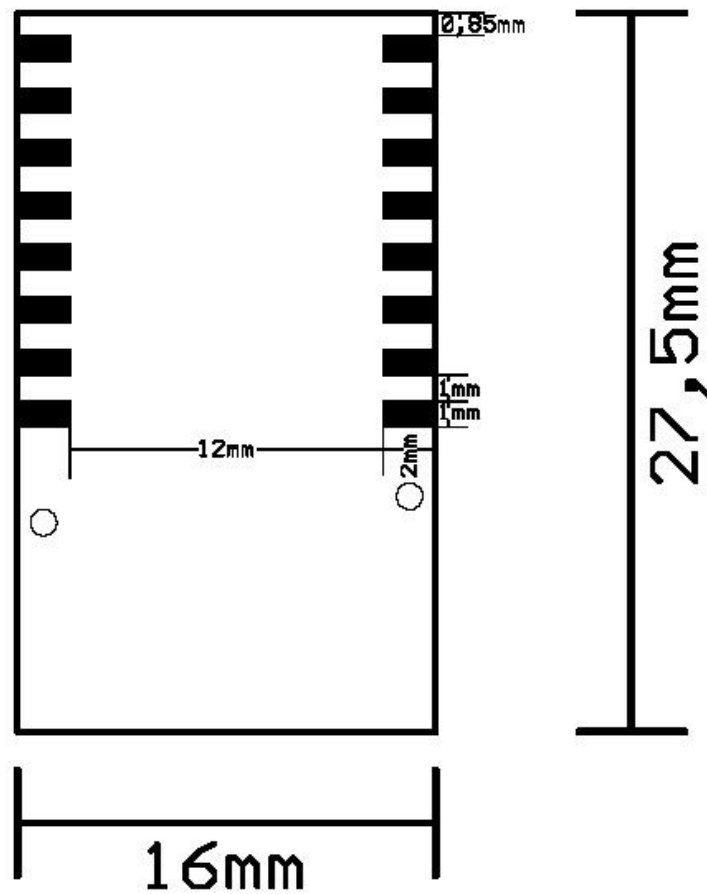
ST1		
Pin Nr.	Signal of BlueNiceCom III	Signal of LMX 9820
1	VCC	Voltage supply (2,85V bis 3,6V)
2	ISEL1	Input Isel1 of LMX9820
3	ISEL2	Input Isel2 of LMX9820
4	RX	Input Uart rx of LMX9820
5	TX	Output Uart tx of LMX9820
6	RTS	Output Uart rts of LMX9820
7	CTS	Input Uart cts of LMX9820
8	RESET	Input Reset b and Reset_5100 of LMX9820
9	GND	Ground
10	ENV1	Input Env1 of LMX9820
11	ENV0	Input Env0 of LMX9820
12	LSTAT_0	Output Lstat_0 of LMX9820
13	LSTAT_1	Output Lstat_1 of LMX9820
14	HOST_WU	Output Host_wu of LMX9820
15	TX_SWITCH_P	Output TX_Switch_P of LMX9820
16	VDD_DIGI_PWR_D#	Input VDD_DIGI_PWR_D# of LMX9820

The signal level correspond to the power supply (2,85V bis 3,6V) of BlueNiceCom III and must be aligned if the Hostsystem has a different signal level.

## 4 Dimension:

BlueNiceCom III has 1mm x 2mm soldering pads with a raster of 2mm to be solder direct on a motherboard.

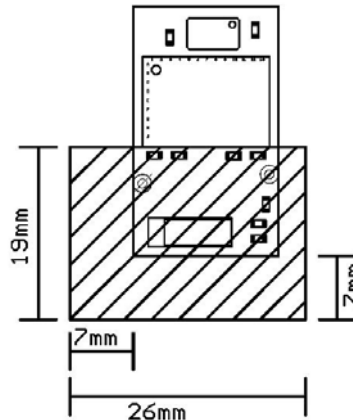
### TOP VIEW



## 5 Details for Layout:

To achieve the maximum of range no metall has to be near or under the antenna. The antenna should have a distance of 8mm to any ground, strip line or component. Most suitable is to place the antenna at the margin of the motherboard.

The figure shows the area which should be free of metal (ground, strip line, components, etc..).



The area off 12mm between the soldering pads on the bottom side should (e.g. with adhesive tape) additional isolated, if any strip line is under the module to avoid any short circuit.

## 6 Soldering & Reflow

- Reflow appropriate
- The temperature curve depends on the motherboard it's character.
- Depending on the limit values of the components following limits are not allowed to excess-

225°C (LMX)

220°C max. 10s (Chip-antenna)

200°C max. 40s (Chip-antenna)

- Recommendation for Footprints:

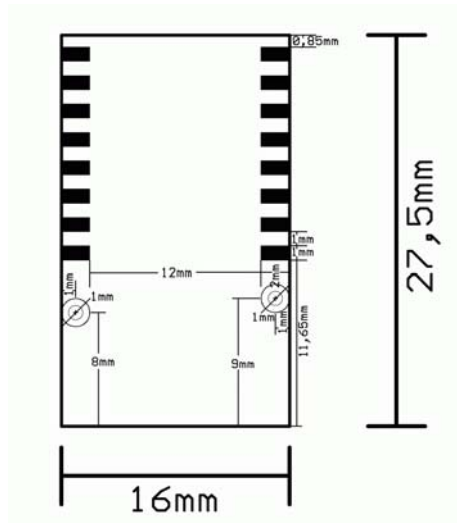


Abbildung 1: **BlueNiceCom III**

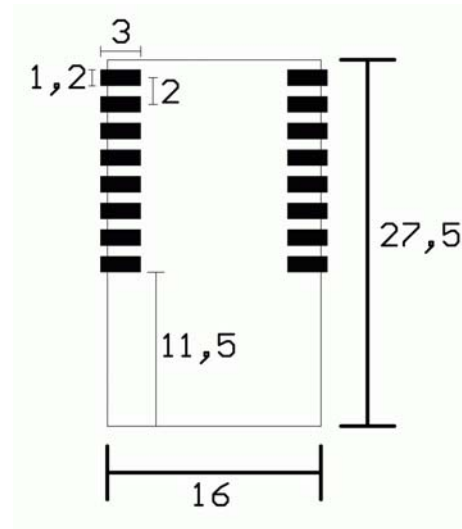


Abbildung 2: **Vorschlag for Footprint**

### Further range of products around BlueNiceCom II:

**Bluetoothmodules:** BlueNiceCom I & II & III

**Evaluation-Kit:** 1 BlueNiceCom II module; 1 2,4GHz antenna; 1 RS232 board with Sub-D-9 connector and LED's; batteries for power supply; 1 USB-Bluetoothmodule for a second station – to build up a Bluetooth radio link immediately, documentation and software.

**Software-Tools:** C-Tools for controlling the LMX9820.

AMBER wireless GmbH reserves for itself to change the mentioned data without announcement and takes no liability for technical inaccuracies and/or omissions.

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