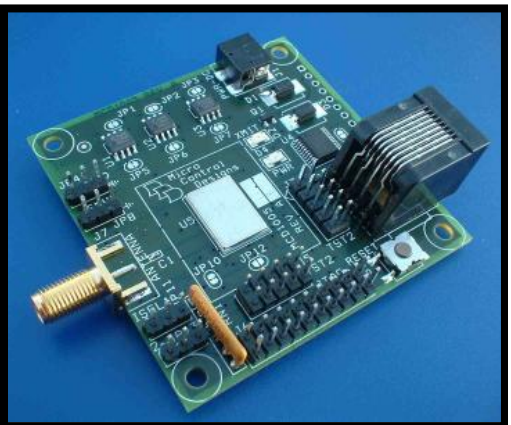


**Micro  
Control  
Designs  
Inc.**

**MCD1005**



**MCD1005 BLUETOOTH WIRELESS SERIAL LINK MODULE**

**Features:**

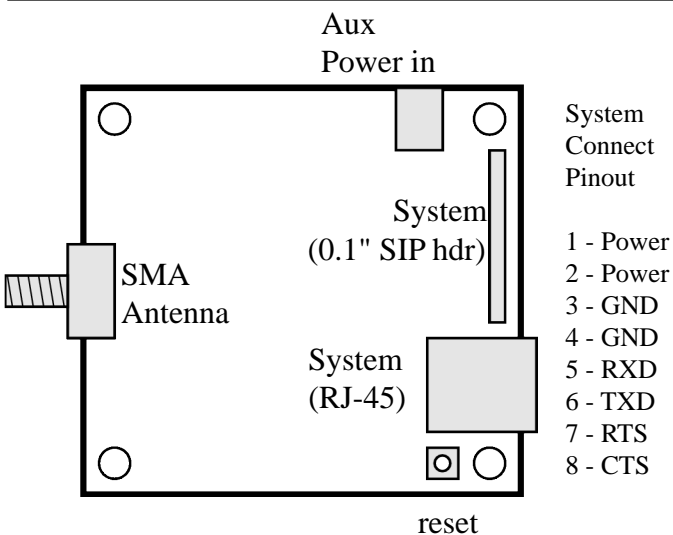
- *Wireless RS-232 cable replacement*
- *Control from any Bluetooth-enabled device (PDA, Palmtop, cell phone)*
- *Secure wireless connections*
- *Up to 723 Kbps transfer rate*
- *Supports full Bluetooth protocol.*

Ideal for embedded systems, the MCD1005 module gives embedded system designers a painless way to add wireless connectivity to new or existing products. The module can be embedded into a product with a single SIP connector, or can be connected via an RJ-45 connector. Just add an antenna to the output for wireless connectivity.

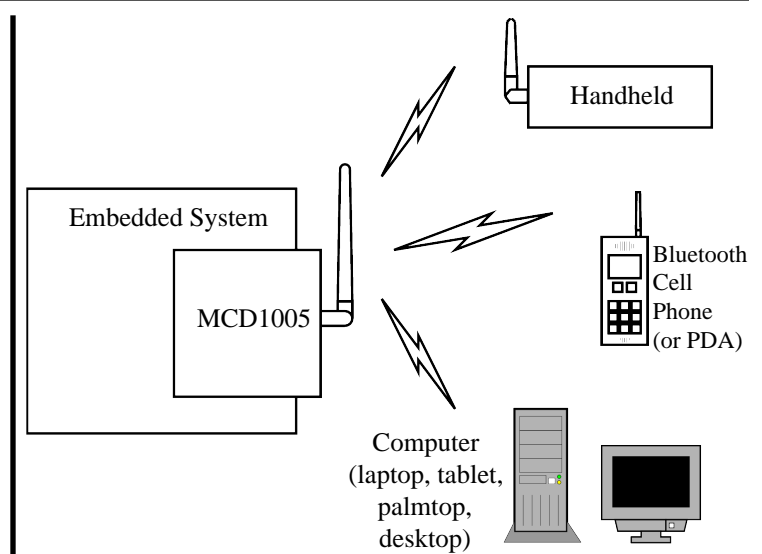
**Electrical Specifications**

Specification	Units	Minimum	Typical	Maximum
Voltage input	Volts	4.0	6.0	12.0
Current consumption (idle)	mA	(LED's can be removed to lower current consumption)	45	
Current consumption (operating)	mA		85	

Serial port signal levels Standard EIA-232 levels supported



**Connection Diagram**



**Typical Applications**

# MCD1005 BLUETOOTH WIRELESS SERIAL LINK MODULE

## General Description

The MCD1005 board provides an RS-232 to Bluetooth interface to embedded systems. It is based on the National Semiconductor® LMX9820 Bluetooth™ Serial Port Module. This system provides a complete solution from the serial interface port to the antenna.

The MCD1005 was designed to either be mounted directly to the embedded system or remote mounted. When remote mounted, it is connected to the embedded system via a standard CAT-5 cable using the on board RJ-45 connector.

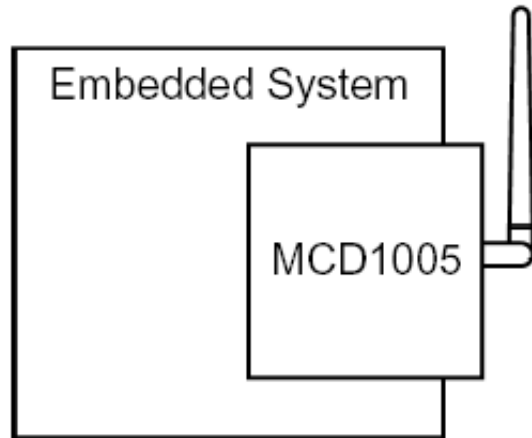


Figure 1 - MCD1005 Application

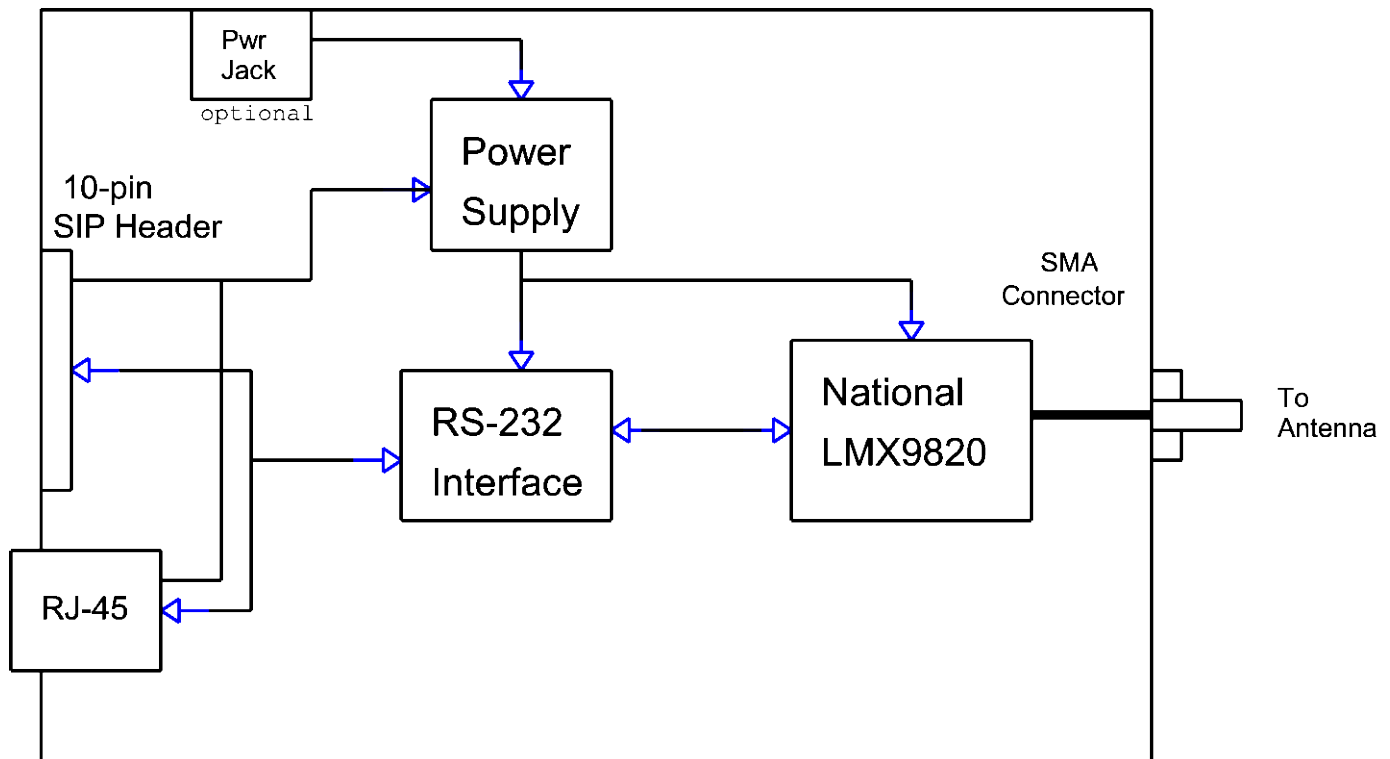


Figure 2 - MCD1005 Block Diagram

National Semiconductor is a registered trademark  
Bluetooth is a trademark of Bluetooth SIG

# MCD1005 BLUETOOTH WIRELESS SERIAL LINK MODULE

The MCD1005 board can be used in a networked environment in which there are numerous Bluetooth devices communicating with one another, or in a transparent mode acting as a wireless cable replacement.

The MCD1005 can also be used as a simple evaluation kit for the LMX9820. Existing embedded systems can be made to communicate with other systems or a PC very quickly.

## RJ-45 Connections (J3)

Pin	Function
1	Power (3.3 - 9 volts DC)
2	No Connect
3	GND
4	GND
5	RxData
6	TxData
7	CTS
8	RTS

Table 1 - J3 (RJ-45) Connections

## 10-Pin Header Connections (J2)

Pin	Function
1	Power (3.3 - 9 volts DC)
2	Power (3.3 - 9 volts DC)
3	GND
4	GND
5	RxData
6	TxData
7	CTS
8	RTS
9	RESET
10	STAT1

Table 1 - J3 (RJ-45) Connections

The MCD1005 board is connected to the external system by either the J3 RJ-45 connector or the J2 10-Pin Header. There are two additional signals available on the J2 connector. The description of each of these signals is as follows:

**Power** -- Power can be supplied to the MCD1005 board from the J3 RJ-45 connector, the J2 header, or the optional J1 power jack. The power jack is loaded on MCD1005-EVAL systems and is intended to be connected to an external DC power source (4-9 volts).

**GND** -- This is the power and signal ground connection.

**RxData** -- Receive data. This is the RS-232 data received from the external system into the MCD1005 board.

**TxData** -- Transmit Data. This is the RS-232 data transmitted from the MCD1005 to the external system.

**CTS** -- Clear to Send. This RS-232 level signal is input to the MCD1005 board from the external system. This signal is used for hardware flow control and is normally connected to the RTS (Request to Send) signal from the remote system.

**RTS** -- Request to Send. This RS-232 level signal is output from the MCD1005 board and is used for hardware flow control. It is normally connected to the external system's CTS (Clear to Send) signal.

**RESET** -- This signal is only available at the J2 header and is connected to the LMX9820's reset line. This signal can be used by the embedded system to reset the LMX9820. This signal must be connected to an open collector/drain type output and is asserted low (0).

# MCD1005 BLUETOOTH WIRELESS SERIAL LINK MODULE

**STAT1** -- This signal is only available on the J2 header. It is connected to the LMX9820's "Lstat\_1" signal. This signal provides status information on the current link state (see National Semiconductor's LMX9820 "Bluetooth Serial Port Module" data sheet for more information).

## Baud Rate Selection

ISEL1 JP4	ISEL2 JP3	Speed
1 (1-2)	1 (1-2)	921.6 kbaud
0 (2-3)	1 (1-2)	115.2 kbaud
1 (1-2)	0 (2-3)	9.6 kbaud
0 (2-3)	0 (2-3)	Non-valid setting

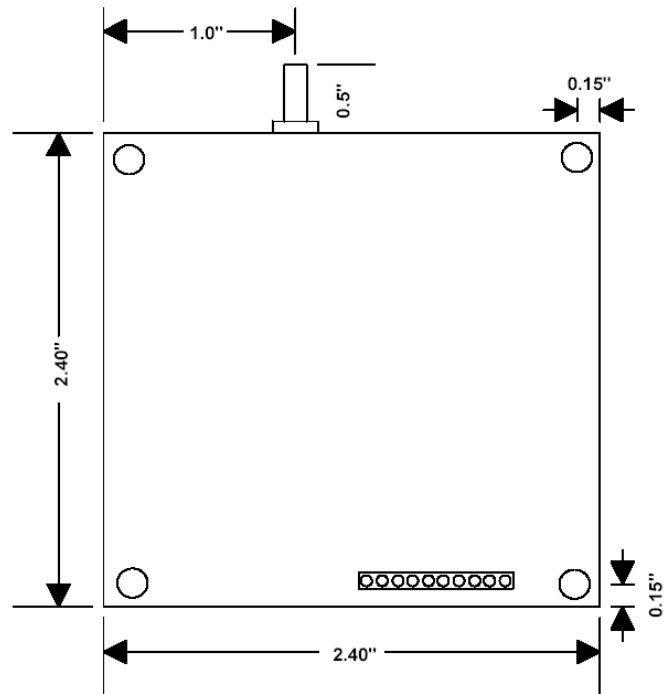
**Table 3 - Baud Rate Selection**

The baud rate of the serial port is selected via the JP3 and JP4 jumpers. These jumpers are connected to the LMX9820's "ISEL1" and "ISEL2" pins.

\*\*\* Errata \*\*\* -- Note that there is an error on the MCD1005 Rev "B" board silkscreen. The JP3 and JP4 jumpers are incorrectly labeled. JP4 is "ISEL1" and JP3 is "ISEL2".

When the MCD1005 baud rate is placed in the "NVS" mode, JP3 & JP4 at 0, then the actual baud rate is selected via the Non-Volatile storage within the LMX9820. This non-volatile baud rate setting is commanded via the serial port command interface.

## Physical Dimensions



**Figure 3 - MCD1005 Dimensions**

## Other Information

*National Semiconductor's LMX9820 Bluetooth Serial Port Module - Datasheet.*

*National Semiconductor's LMX9820 Bluetooth Serial Port Module - Software Users Guide.*