MCB3100 WiRobot Serial Bluetooth Wireless Module User Manual

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Related Document:

WiRobot PMS5005 Sensing and Motion Controller User Manual

WiRobot PMB5010 Multimedia Controller User Manual

I.   Introduction

The MCB3100 Serial Bluetooth Wireless Module is a class II Bluetooth module with on-board communication stack. This device can be plugged into any UART or RS232 compatible serial port (requires MCR3210P RS232 Interface Module for signal change) on almost any devices without needing to install drivers. It can be considered as a "wireless cable" to replacement for any RS232 serial cable and can be used in applications for wireless audio, still image, sensing and control data communications.

Features

- Class 2 Bluetooth operation
- On-board communication stack
- Effective range: 15 meters indoor, 45 meters outdoor
- Support UART data rate: 921.6/460.8/115.2 kbps
- Plug-and-play in the WiRobot system

Applications

- Robotic systems: both run-time and development-stage communication
- General-purpose wireless data communication

II.   Operations

II.1.   Theory of Operation

The MCB3100 Serial Bluetooth Wireless Module is designed to run as part of the WiRobot system. It can be directly plugged on to the PMB5010 Robot Multimedia Controller board or the PMS5005 Robot Sensing and Motion Controller board. When connected to the MCR3210P RS232 Interface board through a cable, it can also serve as wireless links for any systems that have a standard RS232 interface (PC for example). By default, the UART data rate is pre-programmed to 115.2kbps with hardware flow control and can be adjusted according to the customer's preferred setting at the time of purchase. All wireless firmware has been embedded into the module and user simply needs to issue a "CONNECT" command to the MCB3100 in order to establish a connection with another MCB3100 wireless module.

III.   Connections

III.1.   Board Structure

Figure III.1 illustrates the structure of the board

Figure III.1 MCB3100 Structure

III.2.   Connector Description

The MCB3100 is connected to WiRobot system via an 8-pin 2.54 mm-pitch single row connector:

Table III.1 Connectors

Pin	Name	Function
1	VCC	+3.3 V
2	TXD	Data transmitting
3	RXD	Data receiving
4	CTS	Clear to send
5	RTS	Request to send
6	GND	Power supply ground
7	COMRST	Reserved
8	BTIN	Reserved

IV.   Specifications

Table IV.1 MCB3100 Specification

Parameter	Conditions	MIN	TYP	MAX	Unit
Power Supply Voltage (VCC)		3.0	3.3	3.6	V
Signal Pin Voltage			3.3		V
RF Frequency		2400		2483.5	MHz
Antenna Load			50		Ohm
Low-level Input Voltage	VCC = 3.3V			0.8	V
High-level Input Voltage	VCC = 3.3V	2.0			V
Low-level Output Voltage	VCC = 3.3V, IOL = 2mA			0.4	V
High-level Output Voltage	VCC = 3.3V, IOH = 2mA	2.4			V
Low-level Output Current	VCC = 3.3V, VOL = 0.4V			2.2	mA
High-level Output Current	VCC = 3.3V, VOH = 2.4V			3.1	mA
Board Size			30 x 40		mmxmm