



LM300 Bluetooth Ethernet Access Point/Server

3 Simultaneous Bluetooth SPP Connections

Product LM300
 Part No 300-0361
 Revised 20/12/2014



Bluetooth Features

- Supports 3 simultaneous Bluetooth SPP Connections
- CSR Bluecore 04 (BC04) chipset
- Bluetooth 2.0 + EDR compliant module
- Multiconnection firmware hexadecimal Command set provided for module configuration
- Control 3 wireless devices from anywhere on LAN/WAN
- Class 1 Bluetooth Plug and Play Module with External SMA Antenna 2 dBi Antenna provided by default
- Up to 100m range in open space
- 802.11 Coexistence supported

**: Telnet configuration support on Windows XP*

Server Features

- Supports 10/100 Mbps Ethernet
- Supports RS-232, RS-422 and RS-485 serial interface
- Supports LAN and WAN Communications
- In Server mode supports individual client sessions for security
- Virtual COM Drivers for Windows ME/2000/XP/VISTA/7 Support socket connection, TCP Server, TCP client, and UDP Support up to 8 TCP connection in TCP Server mode
- Heartbeat connection ensures reliable TCP connection against power failure or disruption
- Supports loop back mode. Data is looped-back for testing a connection easily

Firmware upgrade supported over Virtual Serial Port

- Firmware upgrade supported over Virtual Serial Port
- Access physical or Bluetooth serial devices anywhere by adding the Server to LAN/WAN without the need of physically connecting to PC Serial Port
- Windows Utility (LM300 Manager Software) provided for configuration and testing
- CE, FCC, RoHS approved product

Supports Serial Console, Web Console, Telnet* or Virtual COM port configuration using GUI Application

- Access physical or Bluetooth serial devices anywhere by adding the Server to LAN/WAN without the need of physically connecting to PC Serial Port
- Windows Utility (LM300 Manager Software) provided for configuration and testing CE, FCC, RoHS approved product

Overview

The LM300 Bluetooth Ethernet Access Point bridges Serial or Bluetooth devices to the Ethernet LAN/WAN.

Existing Serial devices are no longer limited to physical connection to PC COM port. They can be installed anywhere on the LAN using TCP/IP or UDP/IP communication. The LM300 Manager Software installs 2 virtual serial ports on the PC to communicate with the LM300. One serial port is mapped to the physical serial port on LM300 and the other port is mapped to the Bluetooth module inside LM300. Hence, the LAN becomes transparent to the serial Device and the software running on PC.

The LM300 can be configured as a TCP or UDP Client/Server. In Direct IP and virtual COM modes, LM300 should be configured as a server. LM300 also offers Heart beat feature to ensure reliable communication.



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Communication Modes

The LM300 contains the LM Technologies LM410 Bluetooth Module which is programmed with Multiconnection SPP firmware. The Bluetooth Module is a Class 1 module with external SMA Antenna. It can attain a range of up to 100 m in open space. The firmware allows maximum 3 simultaneous SPP connections. Hence it is possible to control up to 3 Bluetooth devices remotely over LAN/WAN using the LM300 Bluetooth Ethernet Server.

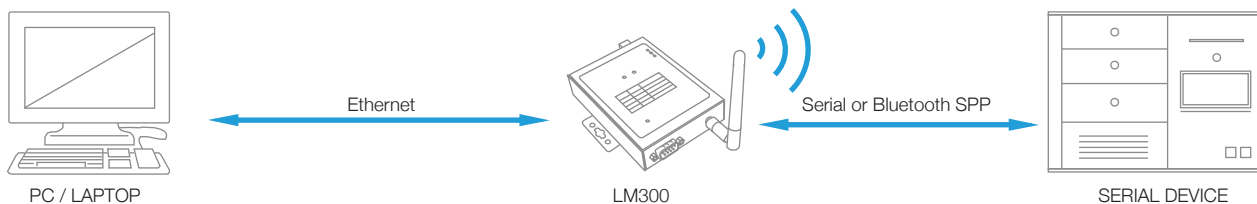
The Direct IP, Virtual COM & Paired Mode and Heartbeat protocol are explained below.

Direct IP Mode

- Direct IP Mode Connections allow the applications using TCP/IP or UDP/IP network socket programs to communicate with the synchronous Serial Port on the LM300. In this type of application the LM300 is configured to TCP or UDP server. The socket program running on the PC establishes a communication connection with the LM300. The raw data is sent directly to and from the serial port.

Virtual COM Mode

- The virtual COM mode requires the installation of a virtual COM port device driver. The LM300 Manager Software installs 2 virtual serial ports in the Device Manager. One serial port is mapped to the physical Serial Port in LM300 and other is mapped to the bluetooth module inside LM300. The PC will act as a host connecting to LM300 when the program opens Virtual COM port. In this mode, the LM300 must be set either to TCP or UDP server in the menu with a designated Serial Port number. The virtual COM driver is a TCP or UDP client.



Two LM300s are configured with one setup as a TCP or UDP client and other setup as TCP/UDP server. When setting up the server, the remote IP address section must contain the address of the client. This will allow the Client's IP address to pass the IP address filtering feature of the Server. Conversely, the Remote IP address of the client must contain the Server's IP address.

Paired Mode

- Paired Mode is also called serial tunneling. When this type of configuration is selected, no additional software is needed to be installed on the host PC. Infact a PC is not required to make the connection. Any two dumb serial devices that can communicate with each other through a serial link will be able to communicate using two LM300 Server and the LAN.

Heartbeat Protocol

Two LM300s are configured with one setup as a TCP or UDP client and other setup as TCP/UDP server. When setting up the server, the remote IP address section must contain the address of the client. This will allow the Client's IP address to pass the IP address filtering feature of the Server. Conversely, the Remote IP address of the client must contain the Server's IP address.



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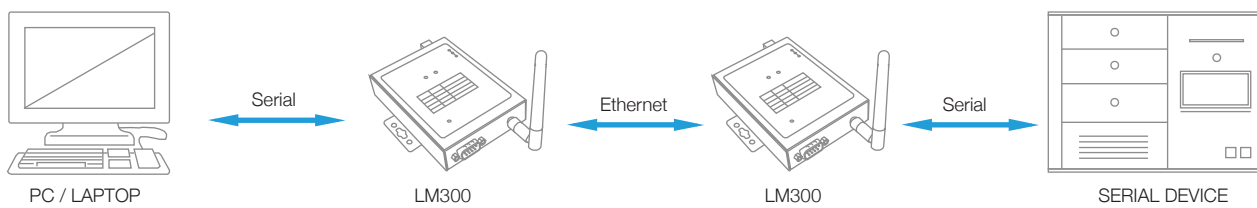
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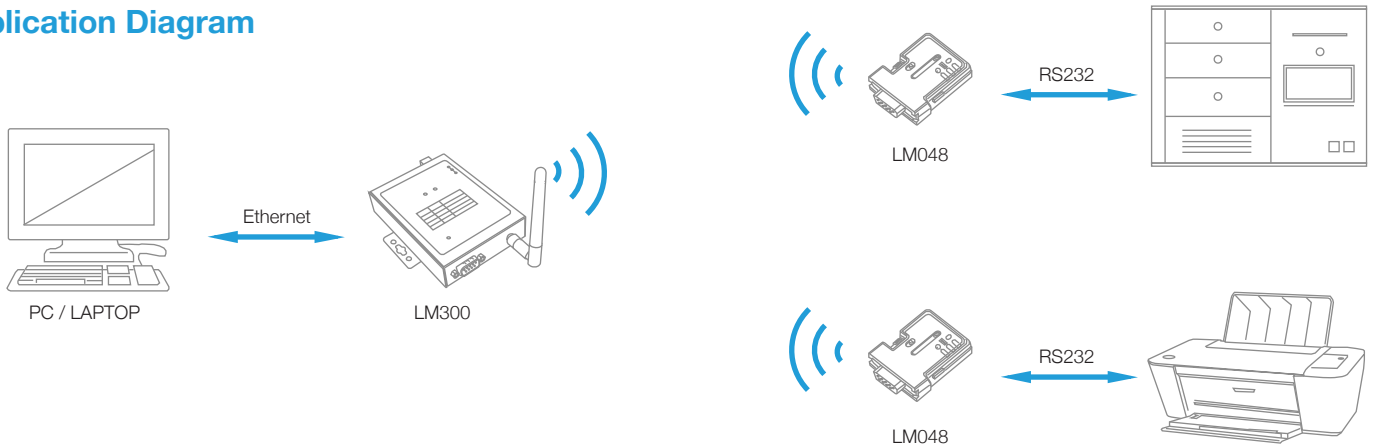
Heartbeat Protocol (continued)

Reliable Communication

- The LM300 provides a convenient way to establish a reliable communications between two devices. Communications port 5300 is reserved for the Heartbeat protocol. If loss of connection occurs, the heartbeat protocol lets the LM300 know of a connection failure, hence ensuring reliable communication. If a loss occurs, the Heartbeat feature will try to reconnect the TCP data connection every 5 seconds until communication is established again. The heartbeat feature is available when using Direct IP, Virtual COM or Paired Mode. This is not available when using UDP application.



Application Diagram



Packaging Options

SRP - Retail Pack
 Part No 300-0361

- 1 x LM300 with BT2.0 + EDR firmware.
- 1 x 2dBi Antenna.

- User Guides, Manuals and Wicomm Configuration Software available to download via our website - <http://www.lm-technologies.com/support/downloads>



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General Specification

Serial Buffer	Output: 64 KBytes, Input: 8 KBytes per port
Serial Connections	DTE - DB9 Male
LAN	100/10 Mbps Auto-detecting - 10 base T, 100 Base Tx
Serial Interfaces	RS232 - Tx, Rx, RTS, CTS, DTR, DSR, GND RS422 - Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND RS485 - DATA+, DATA-, GND
Mounting	DIN Panel or Rail
Data Rate	110 bps to 230.4 kbps
Parity	None, Even, Odd, Mark, Space
Data Bits	5,6,7 or 8
Stop Bits	1, 1.5 or 2
Protocol	TCP, IP, ARP, DHCP, Telnet, HTTP, UDP, ICMP
Management	LM300 Manager Software, Serial Console, Telnet, Web Server, Firmware Upgradable over Virtual COM Port. Password access option available
Dimensions	85mm x 115mm x 23mm
Weight	322g
Power Requirement	9 - 15 V DC, 300 mA
Storage Temperature	-20° C to 60° C
Operating Temperature	0° to 50° C
Humidity	0 to 90% Non Condensing
Range	100 ft (30 m) Indoors/Urban Range 300 ft (100 m) Outdoors/Open space
Network Topology	Star
Approvals	CE, FCC
Bluetooth Specification	Core v2.0 + EDR
Max Bluetooth Connections	3 SPP Connections
Bluetooth Firmware	Multiconnection SPP Firmware
Bluetooth Chip	CSR Bluecore 4 (BC04)
Frequency Range	2402 - 2480 MHz
Antenna	External SMA Antenna
Rx Sensitivity	-88 dBm Typical
Antenna Gain	+2 dBm SMA Antenna (default)
Bluetooth Module Power Output	+18 dBm Max



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Default Settings for LM300 Server

Server name	LMport-101
Serial number	Fixed – see bottom label
Password: DHCP	Blank
IP address	Disable
Netmask	192.168.1.1
Gateway	255.255.255.0
MAC address	192.168.1.254
Version & Date	Fixed – see bottom label
Protocol	Current firmware version number and date TCP
Serial timeout	0 seconds
TCP alive timeout	0 minutes
Connection mode	Server
Delimiter HEX 1	00
Delimiter HEX 2	00
Force transmit	0 ms
TCP/UDP port	LMport-101 port 1: 4000
Serial port mode	Console
Maximum connection	1
Remote IP address	255.255.255.255
Serial Port 1	Baud rate: 9600, Data/Stop bits: 8/1, Parity: None, Flow control: None
Serial Port 2	Baud rate: 115200 Data/Stop bits: 8/1, Parity: None, Flow control: RTS/CTS (Hardware)

Default Settings for Bluetooth Module

Name	LM BT ServerXXXX (XXX = last 4 digits of Bluetooth Address of module.)
Pin Code	1234
Class of Device	0x001F00 (Unclassified)
Max Data Chunk	48 bytes
Connectable	YES
Auto Connect	YES
Security Mode	Authenticate and Encrypt
Pin Type	Fixed Pin
Connection Mode	Multiple
Data Transfer Mode	Streaming Mode
Discoverable Mode	Discoverable

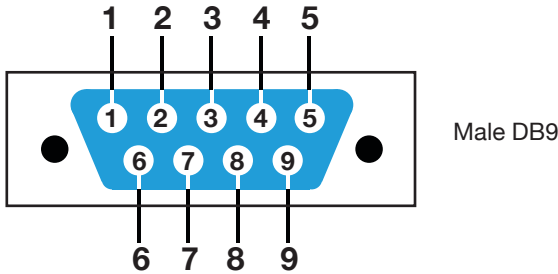


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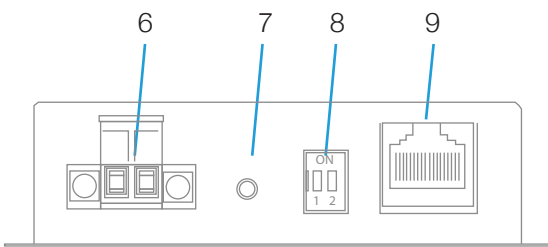
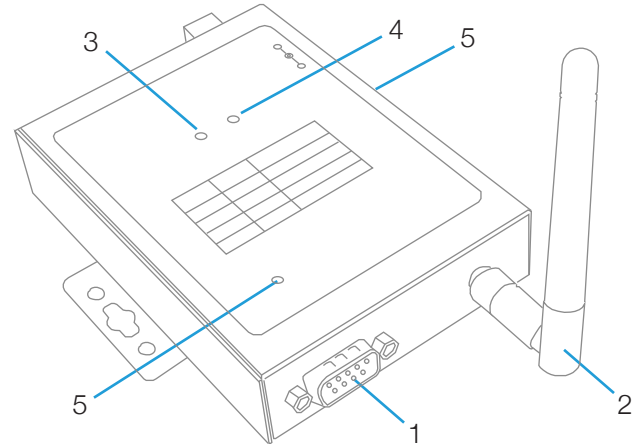
Pin Out



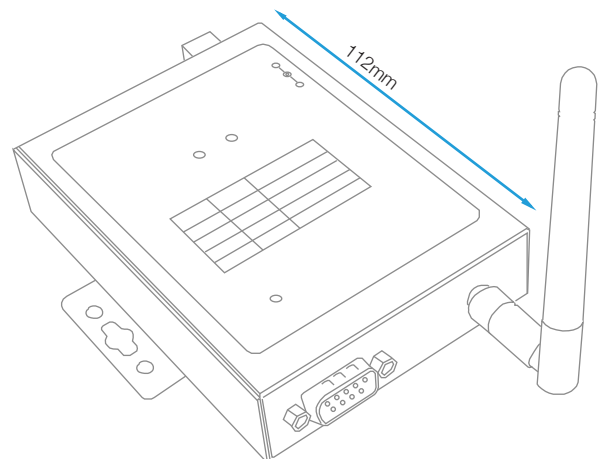
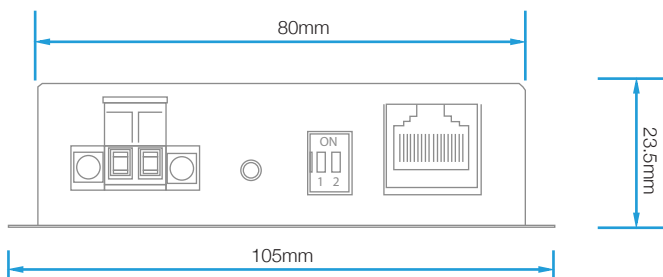
DB9M Pin	RS232	RS422	RS485
1	DCD	RX-	
2	RxD	RX+	
3	TxD	TX+	Data+
4	DTR	TX-	Data-
5	GND	GND	
6	DSR	CTS-	
7	RTS	CTS+	
8	CTS	RTS+	
9	RI	RTS-	

Hardware Structure

- 1 RS232 Connection
- 2 Antenna Connection.
- 3 Link Indicator.
- 4 Run Indicator.
- 5 Power Supply Socket.
- 6 V+ V-.
- 7 Reset Button.
- 8 SW.
- 9 Ethernet 10/100M.



Dimensions





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Revision History

1.0	22/DEC/2014	Updated Datasheet
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