LM506 Bluetooth® v4.0 Dual Mode Adapter
Host Controller Interface (HCI) via USB Interface

Product	LM506
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Revised	11/JAN/2018
Datasheet Version	1.0

❖ Bluetooth®

OSX Linux™ Win XP Win Vista Win 7 Win 8 Win 10

8.1mm
16mm
19.47mm

Features

- Bluetooth® v4.0 (Backwards compatible with Bluetooth® v2.0, v2.1 and v3.0)

- 0 dBm (Bluetooth® v2.0, v2.1) and 4.7 dBm (Bluetooth® Smart) Tx Output Power

- USB 2.0 (Full Speed) for data and power source

- Host Controller Interface (HCI)

- Plug and Play (macOS X, Linux and Windows XP – 10 compatible)

- iBeacon compatible

- Voice and Data Application support (including VoIP over Bluetooth®)

- Stereo Audio supported

- 19.47mm x 16mm x 8.1mm

- See our website for this products certifications.

- RoHS, REACH and WEEE

Overview

The LM506 Bluetooth® v4.0 dual mode adapter is a small, simple and highly compatible solution.

A plug and play USB adapter, compatible with Linux, macOS and Windows XP to Windows 10 platforms, allowing your host computer to wirelessly communicate with other nearby Bluetooth® v2.0, v2.1 and Bluetooth® v4.1 enabled devices (such as the iPhone and Android devices), providing a low energy connection and high quality data stream.

The LM506 has many possible uses e.g. within an iBeacon and a data logger. Typically used in industries such as EPOS, M2M and automotive and is ideal for developing voice and data applications. The adapter has a Host Controller Interface (HCI) for a simple connection via USB to a host computer or MCU.
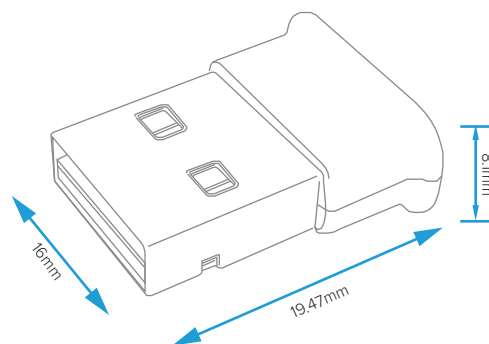
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General Specification

Wireless

Bluetooth® Standard	v4.0 low energy and v2.0, v2.1 wireless technologies
Adapter Type	Host Controller Interface (HCI)
OS Compatibility	OS X (Apple's Bluetooth® Stack), Linux (BlueZ) and Windows XP – 10 (Widcomm)
iBeacon Compatible	Yes

Hardware

Chipset	Broadcom
Antenna	IC Antenna Onboard
Interfaces	USB 2.0 (Full Speed)
Power Supply	5V DC (USB powered)
Crystal Oscillator	20 MHz
LED Indicator	Power/ Active (BLUE)

RF Characteristics

Tx Output Power	0 dBm (Bluetooth® v2.0, v2.1) and 4.7 dBm (Bluetooth® Smart)
Rx Sensitivity	-82 dBm (Bluetooth® v2.0, v2.1)
Current Consumption	TBA
Continuous RX	TBA
Data Rate	Up to 3Mbps
Frequency	2.4GHz to 2.485 GHz
Modulation Scheme	GFSK for 1 Mbps, π/4-DQPSK for 2 Mbps, 8-DPSK for 3 Mbps
Spread Spectrum	FHSS (Frequency Hopping Spread Spectrum)

Physical Characteristics

Operating Temperature	-30℃ to +85℃
Dimensions (L x W x H)	19.47mm x 16mm x 8.1mm
Weight	1.68g +/- 0.25g tolerance (23.99g in retail pack)
Certifications	See our website for this products certifications.
Compliance	RoHS, REACH and WEEE

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HCI Architecture

Within the Host Controller Interface (HCI) Architecture, the LM506 runs the HCI Firmware, Link Manager Firmware and baseband controller.
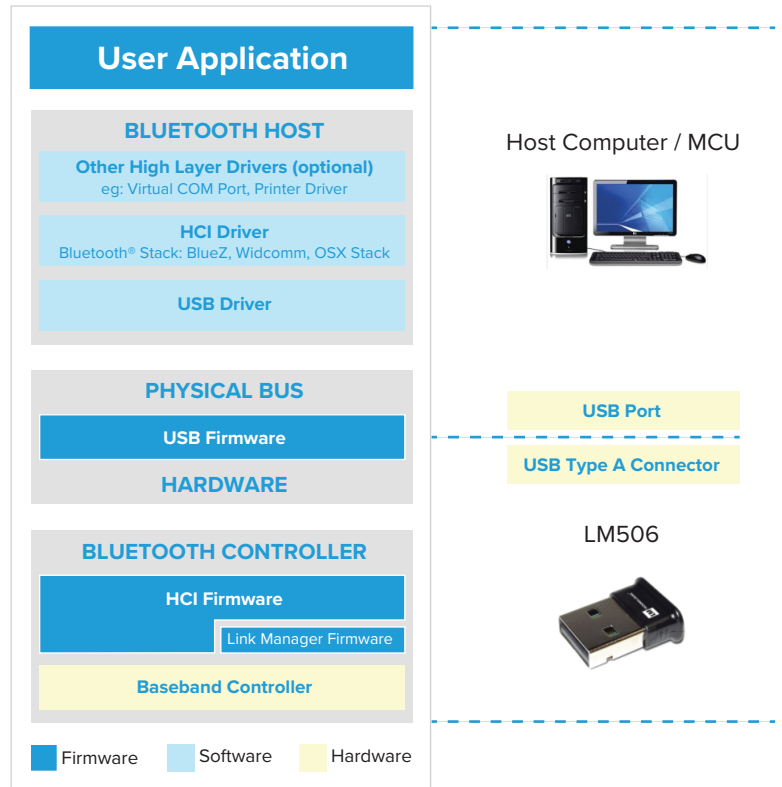
The host operating system runs the Bluetooth® v2.0, v2.1 / v4.0 user application. It also runs the Bluetooth® Stack (HCI Driver), USB Driver and other necessary drivers.

The Bluetooth® Stack (HCI Driver) exchanges data and commands with the HCI firmware via the USB interface.

The LM506 is plug and play and compatible with the OSX, Linux and Windows XP – 10 platforms.

The Bluetooth® Stack is in-built into the operating system. With the Widcomm Bluetooth® Stack Software specifically designed for the Broadcom chipset within the LM506.

The table below shows the tested OS version numbers:

User Application

BLUETOOTH HOST
Other High Layer Drivers (optional)
eg: Virtual COM Port, Printer Driver

HCI Driver
Bluetooth® Stack: BlueZ, Widcomm, OSX Stack

USB Driver

PHYSICAL BUS
USB Firmware
HARDWARE

BLUETOOTH CONTROLLER
HCI Firmware
Link Manager Firmware
Baseband Controller

Firmware   Software   Hardware

Host Computer / MCU

USB Port

USB Type A Connector

LM506

Host Operating System	Bluetooth® Stack *	LM Tested OS Version Number
MAC OSX	OSX Bluetooth® Stack	OSX 10.11 (El Capitan)
Linux	BlueZ	Ubuntu 15.10 (Kernel 4.2.0-16-generic) and Ubuntu 14.04.03 (Kernel 3.13.0-77-generic)
Windows	Widcomm	Win 10 (64-bit), Win 10 (32-Bit), Win 8/8.1 (64-bit), Win 8/8.1 (32-Bit), Win 7 (64-bit) and Win XP (32-bit)

*NOTE: Third-party Bluetooth® Stack Software can be used as an alternative to the in-built Bluetooth® Stack for more supported profiles.

Datasheet Version Notes

v1.0   11 JAN 2018   Added version notes to datasheet.

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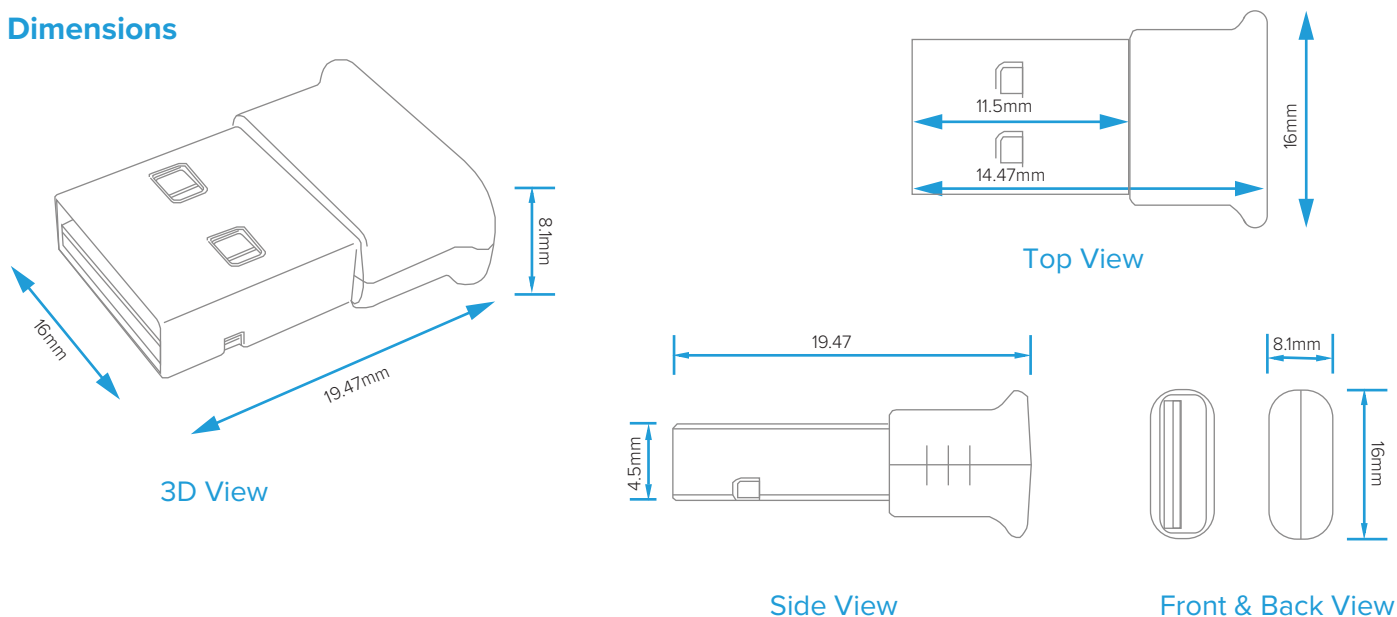Page 4 of 5

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Dimensions

8.1mm

16mm

19.47mm

3D View

11.5mm

14.47mm

16mm

Top View

19.47

4.5mm

Side View

8.1mm

16mm

Front & Back View

LM506 Packaging Options

506-0503

Sample (2x20)
ADPT HCI BT4.0 EDR USB IC-ANT USB ETCH SAMPLE (2x20)

506-0502

AO - Adapter Only
ADPT HCI BT4.0 EDR USB BCM20702 IC-ANT USB ETCH AO

506-0508

RP - Retail Pack
ADPT HCI BT4.0 EDR USB IC-ANT USB ETCH RP