LM506 Bluetooth® v4.0 Dual Mode Adapter

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 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.
# General Specification

## Wireless

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluetooth® Standard</td>
<td>v4.0 low energy and v2.0, v2.1 wireless technologies</td>
</tr>
<tr>
<td>Adapter Type</td>
<td>Host Controller Interface (HCI)</td>
</tr>
<tr>
<td>OS Compatibility</td>
<td>OS X (Apple's Bluetooth® Stack), Linux (BlueZ) and Windows XP – 10 (Widcomm)</td>
</tr>
<tr>
<td>iBeacon Compatible</td>
<td>Yes</td>
</tr>
</tbody>
</table>

## Hardware

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipset</td>
<td>Broadcom</td>
</tr>
<tr>
<td>Antenna</td>
<td>IC Antenna Onboard</td>
</tr>
<tr>
<td>Interfaces</td>
<td>USB 2.0</td>
</tr>
<tr>
<td>Power Supply</td>
<td>5V DC (USB powered)</td>
</tr>
<tr>
<td>Crystal Oscillator</td>
<td>20 MHz</td>
</tr>
<tr>
<td>LED Indicator</td>
<td>Power/ Active (BLUE)</td>
</tr>
</tbody>
</table>

## RF Characteristics

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

## Physical Characteristics

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-30°C to +85°C</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>19.47mm x 16mm x 8.1mm</td>
</tr>
<tr>
<td>Weight</td>
<td>1.68g +/- 0.25g tolerance (23.99g in retail pack)</td>
</tr>
<tr>
<td>Certifications</td>
<td>See our website for this products certifications.</td>
</tr>
<tr>
<td>Compliance</td>
<td>RoHS, REACH and WEEE</td>
</tr>
</tbody>
</table>
**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:

<table>
<thead>
<tr>
<th>Host Operating System</th>
<th>Bluetooth® Stack</th>
<th>LM Tested OS Version Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC OSX</td>
<td>OSX Bluetooth® Stack</td>
<td>OSX 10.11 (El Capitan)</td>
</tr>
<tr>
<td>Linux</td>
<td>BlueZ</td>
<td>Ubuntu 15.10 (Kernel 4.2.0-16-generic) and Ubuntu 14.04.03 (Kernel 3.13.0-77-generic)</td>
</tr>
<tr>
<td>Windows</td>
<td>Widcomm</td>
<td>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)</td>
</tr>
</tbody>
</table>

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

Dimensions

Top View

Side View

3D View

Front & Back View

LM506 Packaging Options

<table>
<thead>
<tr>
<th>Part No</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>506-0503</td>
<td>Sample (2x20) ADPT HCI BT4.0 EDR USB IC-ANT USB ETCH SAMPLE (2x20)</td>
</tr>
<tr>
<td>506-0502</td>
<td>AO - Adapter Only ADPT HCI BT4.0 EDR USB BCM20702 IC-ANT USB ETCH AO</td>
</tr>
<tr>
<td>506-0508</td>
<td>RP - Retail Pack ADPT HCI BT4.0 EDR USB IC-ANT USB ETCH RP</td>
</tr>
</tbody>
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