

Bluetooth audio solutions

Wireless music transmission in excellent quality from a mobile phone, iPhone, notebook or PC

LinTech's Bluetooth modul-based audio solutions guarantee high-quality transmission of audio and music files via Bluetooth. The modules, which are compact and easy to integrate, are conceived as a Bluetooth interface for Hi-Fi systems and loudspeakers or as a base unit for stereo Bluetooth headsets.

The Bluetooth Multimedia Bluetooth single-chip radio and baseband IC for Bluetooth 2.4GHz systems with a 16 Mbit internal flash memory, on-chip DSP, and a stereo codec is a powerful basis für the BT audio application.

As an open platform, the embedded digital signal processor (DSP) enables an expanded range of audio applications, including compression/decompression and EC/NR.

The DSP features automatic calibration and has built-in self-test (BIST) routines to simplify testing during development and production.

The modul-based BT Audio solution was developed to reduce the number of external components needed and minimize production costs.

Maximum audio quality is achieved in conjunction with the new aptX codec. The end-to-end latency of only 32 ms with aptX is well below the standard Bluetooth® latency of over 150 ms (+/- 50ms) and also below the recommended latency of 40 ms for audio/video applications. This means it is possible, for example, to watch a video while listening to synchronised audio signals via a wireless connection.

With minimal delay, virtually lossless compression (data rate 352 kbit/s, frequency range 10Hz-20KHz) and an audio format of 16 bit/44.1KHz, the audio bandwidth corresponds with CD quality.

The LinTech audio solution allow users to stream music at high quality via Bluetooth from mobile phones, MP3 players or a PC to audio, sound or loudspeaker systems.

It is also possible to use them as in-device audio sources.

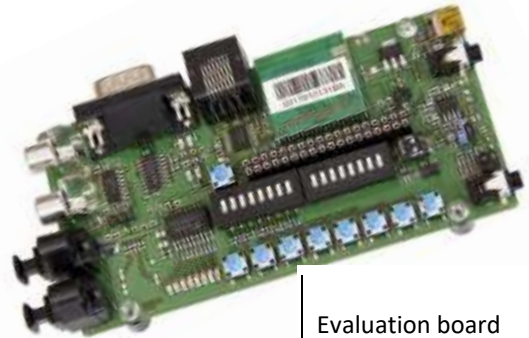
Supported Bluetooth profiles are Advanced Audio Distribution (A2DP), Audio Video Remote Control (AVRCP), Handsfree (HFP) und Headset (HSP) profiles.

The connection is controlled through GPIOs.



Performance features:

- Plug and play Bluetooth solution for stereo audio applications
- Integrated DSP and stereo codec
- SBC encoding/decoding
- aptX audio extension available
- Integrated antenna or modification
- Class 2 – range up to max. 30 m
- Transmitter power 4 dBm, receiver sensitivity -82 dBm
- Low power consumption
- Various construction forms available
- Audio interfaces: analogue in/out, PCM (in/out) , SPDIF (in/out)
- Audio firmware for connection controlling and configuration
- Supported Bluetooth profiles: A2DP/AVRCP, HFP,HSP



Evaluation board for audio modules

LinTech Bluetooth Audio solutions based on Rayson modules:


Rayson BTM-720	Rayson BTM-760	Rayson BTM-770	Rayson BTM-860	Rayson BTM-867
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Configuration

The user can configure the audio modules for special applications via Bluetooth using a convenient software tool.

The following functions are supported, among others:

LinTech provides an evaluation board for evaluating audio connections. The following functions (among others) are supported:

- Evaluation of module inputs and outputs for transmitting device's control keys (e.g. play, stop, fast forward, rewind)
- LED displays (e.g. for connection status, transmission quality, etc.)
- Parameter settings, e.g. device name, autoconnect function, output power, microphone level, etc.
- Test encoding methods such as aptX, aptX II, MP3

*If you have any questions about this product, please contact:
Ms Susanne Meinel
Tel: +49 (30) 54 94 72 61
E-mail sam@lintech.de*

LinTech GmbH Kommunikationstechnologien
Friedrich-Engels-Straße 35, D -13156 Berlin
Phone +49 (030) 54 94 72 60
Fax +49 (030) 54 94 72 44
eMail LinTech@LinTech.de
<http://www.LinTech.de>