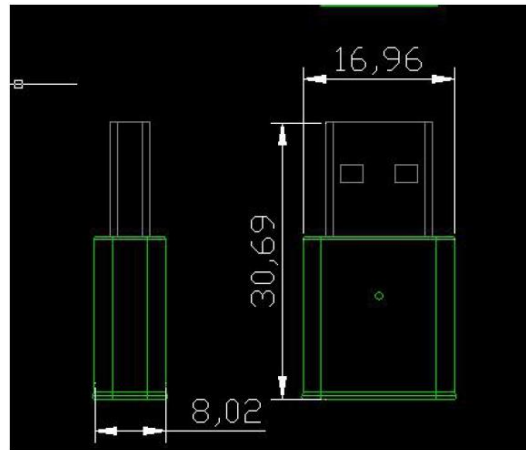


# dongle specification



picture of real products:



specification and dimension:

## 1. Background and Application Scenarios Description

With the popularity of Bluetooth speakers and headphones, wireless technology has brought great convenience to people's lives. Therefore, going wireless has become a major trend in the current consumer electronics industry. Bluetooth technology, with its complete protocol, universality, standardization, and inherent advantages in smart devices, has become one of the preferred wireless communication technologies. For PCs, outputting through a USB sound card can be driver-free and offers better compatibility and ease of use on PCs compared to outputting through a regular Bluetooth dongle. The following are several common scenarios, but not limited to these. Any scenario where a PC pushes audio to a Bluetooth receiving device can consider using this solution.

As shown in Figure 1, it is mainly applied in scenarios where a computer pushes audio to Bluetooth speakers or headphones, or uses Bluetooth speakers or headphones for voice chat, calls, or teleconferences.



图 1

As shown in Figure 2 below, it is mainly applied in teleconference systems, which is equivalent to eliminating the microphone cable in traditional telephone systems and making the microphone part wireless.



图 2

As shown in Figure 3, it is mainly applied in the family living room scenario. The sound of the TV is transmitted to the Bluetooth speaker or headphones through the dongle.



图 3

## 2. Principle Block Diagram

The principle diagram of this case is shown in Figure 4. The computer is connected to the dongle via USB audio, and the dongle then connects to the Bluetooth speaker or headphones via Bluetooth A2DP or HFP. That is, the music on the computer can be pushed to the Bluetooth speaker or headphones, or the Bluetooth speaker or headphones can be used to conduct voice calls with friends through chat software or teleconferencing software. Through USB's HID and Bluetooth's AVRCP, the Bluetooth speaker or headphones can also perform some control over the playback on the PC side.

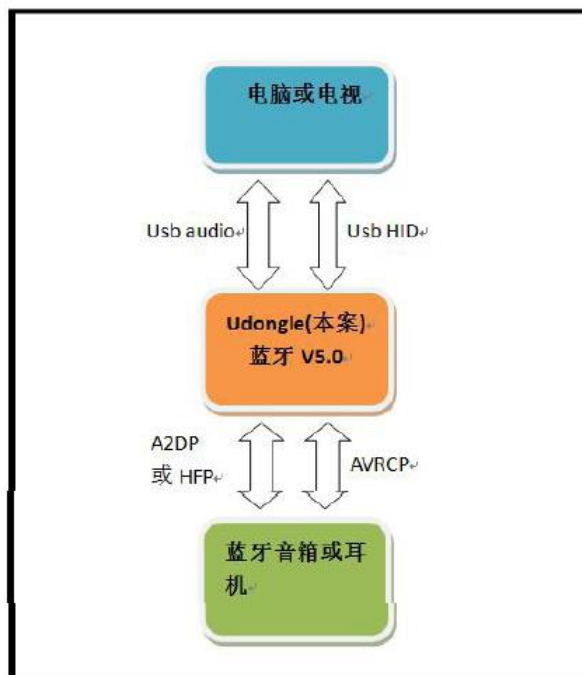


图 4

### 3. Function Description:

function	require	remark
Supports Bluetooth 5.0 protocol	Bluetooth can support the core protocol of version 5.0. Additionally, the Bluetooth profiles (a2dp, hfp) involved in the related voice call dongle are all supported.	
Support USB audio audio transmission	One end of the dongle is connected to the PC via the USB audio channel, while the other end, in the AG role, is connected to a Bluetooth speaker or headphones via Bluetooth HFP, enabling the use of Bluetooth speakers or headphones to achieve the hands-free function of the call software on the PC.	
Voice calls support both regular voice and high-definition voice.	During voice calls, both ordinary voice (with 8K sampling rate and CVSD encoding/decoding) and WBS (i.e. broadband voice: supporting 16K sampling rate and msbc encoding/decoding) can be supported.	
Bluetooth audio transmission supports AVRCP control.	The receiving end can control the playback, pause, and switching of tracks of the transmitting end through AVRCP.	
Bluetooth audio transmission supports digital volume adjustment.	When Bluetooth is transmitting, if the connected Bluetooth speaker does not support volume synchronization, then the digital volume of the transmitted data can be adjusted.	
Supports volume synchronization during Bluetooth audio transmission or voice call	Support the volume synchronization function between the receiving end and the transmitting end, meaning that both the receiving and transmitting ends use the same volume.	

### 4. Binding and Connection

- 1) Insert the dongle into the USB port on the PC.
- 2) Then, follow the steps shown in the following picture to select the USB dongle as the default sound card on the PC.
- 3) Turn on the Bluetooth speaker or headphones, then press the pairing button (some speakers or headphones may not require this, refer to the product manual for details) to enter the pairing mode.
- 4) Bring the Bluetooth speaker or headphones close to the dongle. To increase the success rate of pairing, it is best to be within 0.5 meters. Wait for the pairing process. The dongle will select the nearest Bluetooth speaker or headphones for connection.
- 5) After the dongle pairs with the Bluetooth speaker or headphones, it will automatically connect to the speaker or headphones. Generally, after being connected, the Bluetooth speaker or headphones will have voice announcements or alert sounds. If you are still unsure whether the connection is successful, you can open the player on the PC and play a song. If the Bluetooth connection is successful, the song can be played on the speaker or headphones.

6) After the Bluetooth connection is successful, the device will be bound. The next time the device is powered on, it will default to connecting to this device.

## 5. AVRCP Control

If the speaker or headphones have "next", "prev", "play/pause" buttons and support Bluetooth AVRCP, then by pressing the "next" or "prev" buttons on the speaker or headphones, you can switch the PC player to "next song" or "previous song", and pressing "play/pause" can pause or resume the playback on the PC player.

## 6. Call

This dongle can support PC versions of WeChat, QQ, Skype, etc., as well as various conference software for calls. Below is an example of using WeChat to illustrate the usage method. Other communication tools are similar:

Open the PC version of WeChat, initiate a voice chat with a friend, enter the voice chat interface, conduct normal voice chatting. At this time, the voice of the other party will be played on the speaker or headphones, and when you speak into the speaker or headphones, the other party can also hear your voice.

## 7. Volume Synchronization

If the Bluetooth speaker or headphones have volume buttons and support volume synchronization function, then whether playing music or during a call, pressing the volume buttons on the speaker or headphones can adjust the volume on the PC.

## 8. Connection

The first time powered on, it automatically enters the search and pairing state. After connecting to the device, it will remember the name of the last disconnected device. When powered on again, it will automatically enter the reconnection state. If it fails to reconnect to the device within 15 seconds, it will automatically enter the search and pairing state.

## 9. Indicator Lights Corresponding to Each State

- 1) Search and Pairing: Red and blue lights alternate flashing,
- 2) Reconnection: Blue light flashes once every 1 second
- 3) Connection Success: Blue light flashes once every 5 seconds.

**FCC Warning:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Caution:** Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 0cm between the radiator and your body.