AUDIO SIGNAL TRANSFER DEVICE

FIELD

The present invention generally relates to an electronic technique field, and more particularly relates to an audio signal adapter device.

BACKGROUND

With the development of an audio signal coding/decoding technology, more and more electronic equipments transmitting data via an audio interface are produced. For example, the electronic equipment can be connected with a mobile communication device via a low-resistance voice coil type of loudspeaker interface (such as a headphone interface) of the mobile communication device (such as a mobile phone) for receiving an audio signal output from the mobile communication device.

As an output power of the low-resistance voice coil type of loudspeaker interface is usually very low, except the electronic equipment (such as a headphone) with low power consumption, the electronic equipment receiving the audio signal via the low-resistance voice coil type of loudspeaker interface generally needs to use an external power source or an internal battery for normal working, which increases a cost of the electronic equipment and enlarges a volume of the electronic equipment.

SUMMARY

The present disclosure provides an audio signal adapter device with a high output power.

The present disclosure provides an audio signal adapter device, comprising: an input port, an output port, a boosting unit, a rectifying unit and a filtering unit, wherein the input port comprises a first audio signal input pin configured to receive an audio signal sent by an audio signal sending equipment and to output the audio signal to an input end of the boosting unit; the boosting unit is configured to boost the audio signal input from the input end of the boosting unit, and to output a boosted audio signal to an input end of the rectifying unit via an output end of the boosting unit; the rectifying unit is configured to rectify the boosted audio signal input from the input end of the rectifying unit to obtain a level, and to output the level to an input end of the filtering unit via an output end of the rectifying unit; and the filtering unit is configured to filter the level input from

WHAT IS CLAIMED IS:

1. An audio signal adapter device, comprising: an input port, an output port, a boosting unit, a rectifying unit and a filtering unit, wherein

the input port comprises a first audio signal input pin configured to receive an audio signal sent by an audio signal sending equipment and to output the audio signal to an input end of the boosting unit;

the boosting unit is configured to boost the audio signal input from the input end of the boosting unit, and to output a boosted audio signal to an input end of the rectifying unit via an output end of the boosting unit;

the rectifying unit is configured to rectify the boosted audio signal input from the input end of the rectifying unit to obtain a level, and to output the level to an input end of the filtering unit via an output end of the rectifying unit; and

the filtering unit is configured to filter the level input from the input end of the filtering unit to obtain a direct current level, and to output the direct current level to a power supply output pin of the output port via an output end of the filtering unit.

2. The audio signal adapter device according to claim 1, wherein the output port comprises an audio signal output pin connected with the output end of the boosting unit and configured to output the audio signal.

3. The audio signal adapter device according to claim 1, wherein the output port comprises an audio signal output pin connected with the first audio signal input pin and configured to output the audio signal.

4. The audio signal adapter device according to claim 1, wherein the input port further comprises a MIC pin configured to output a signal to the audio signal sending equipment connected with the MIC pin.

5. The audio signal adapter device according to claim 1, wherein

the boosting unit is a boosting transformer, comprising a primary coil and a secondary coil;

one pin of the primary coil is used as the input end of the boosting unit and connected with the first audio signal input pin, and the other pin of the primary coil is grounded; and

at least one output pin of the secondary coil is used as the output end of the boosting unit and connected with the input end of the rectifying unit, and a tap of the secondary coil is grounded.

6. The audio signal adapter device according to claim 5, wherein the rectifying unit comprises at least one diode, an anode of the at least one diode is connected with the input end of the rectifying unit, and a cathode of the at least one diode is connected with the output end of the rectifying unit.

7. The audio signal adapter device according to claim 6, wherein

the secondary coil of the boosting transformer comprises two output pins;

the input end of the rectifying unit comprises two input pins;

the two output pins of the secondary coil are connected with the two input pins of the rectifying unit respectively; and

the rectifying unit comprises two diodes, and anodes of the two diodes are connected with the two input pins of the rectifying unit respectively.

8. The audio signal adapter device according to claim 1, wherein

the filtering unit comprises a capacitor;

one end of the capacitor is connected with the input or output end of the filtering unit; and

the input end of the filtering unit is connected with the output end of the filtering unit.

9. The audio signal adapter device according to claim 2, further comprising a signal amplifier, wherein the audio signal output pin is connected with the output end of the boosting unit via the signal amplifier.

10. The audio signal adapter device according to claim 3, further comprising a signal amplifier, wherein the audio signal output pin is connected with the first audio signal input pin via the signal amplifier.

11. The audio signal adapter device according to any of claims 1, 3, 5 and 10, wherein the first audio signal input pin comprises a left-channel pin and a right-channel pin.

12. The audio signal adapter device according to claim 1, wherein

the boosting unit is a boosting transformer, comprising a primary coil and a secondary coil;

one pin of the primary coil is used as the input end of the boosting unit and connected with the first audio signal input pin, and the other pin of the primary coil is grounded; and

one output pin of the secondary coil is used as the output end of the boosting unit and connected with the input end of the rectifying unit, and the other output pin of the secondary coil is grounded.

13. The audio signal adapter device according to claim 12, wherein the rectifying unit

comprises one diode, an anode of the diode is connected with the input end of the rectifying unit, and a cathode of the diode is connected with the output end of the rectifying unit.

14. The audio signal adapter device according to claim 1, wherein

the input port further comprises a second audio signal input pin;

the output port comprises an audio signal output pin; and

the audio signal output pin is connected with the second audio signal input pin and configured to output the audio signal.

15. The audio signal adapter device according to claim 14, further comprising a signal amplifier, wherein the audio signal output pin is connected with the second audio signal input pin via the signal amplifier.

AUDIO SIGNAL ADAPTER DEVICE

FIELD

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BACKGROUND

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As an output power of the low-resistance voice coil type of loudspeaker interface is usually very low, except the electronic equipment (such as a headphone) with low power consumption, the electronic equipment receiving the audio signal via the low-resistance voice coil type of loudspeaker interface generally needs to use an external power source or an internal battery for normal working, which increases a cost of the electronic equipment and enlarges a volume of the electronic equipment.

SUMMARY

The present disclosure provides an audio signal adapter device which can realize feeding function via an audio signal.

The present disclosure provides an audio signal adapter device, comprising: an input port, an output port, a boosting unit, a rectifying unit and a filtering unit, wherein the input port comprises a first audio signal input pin configured to receive an audio signal sent by an audio signal sending equipment and to output the audio signal to an input end of the boosting unit; the boosting unit is configured to boost the audio signal input from the input end of the boosting unit, and to output a boosted audio signal to an input end of the rectifying unit via an output end of the boosting unit; the rectifying unit is configured to rectify the boosted audio signal input from the input end of the rectifying unit to obtain a level, and to output the level to an input end of the filtering unit via an output end of the rectifying unit; and the filtering unit is configured to filter the level input from

WHAT IS CLAIMED IS:

1. An audio signal adapter device, comprising: an input port, an output port, and a signal amplifier, wherein

the input port is a headphone interface, and comprises a first audio signal input pin configured to receive an audio signal sent by an audio signal sending equipment and to output the audio signal to an input end of the signal amplifier;

the output port comprises an audio signal output pin; and

the signal amplifier is connected with the first audio signal input pin, an output end of the signal amplifier is connected with the audio signal output pin for outputting an amplified audio signal.

2. The audio signal adapter device according to claim 1, wherein the input port further comprises a MIC pin configured to output a signal to the audio signal sending equipment connected with the MIC pin.

3. The audio signal adapter device according to claim 1, further comprising: a boosting unit, a rectifying unit and a filtering unit, wherein

the boosting unit is configured to boost the audio signal input from an input end of the boosting unit, and to output a boosted audio signal to an input end of the rectifying unit via an output end of the boosting unit;

the rectifying unit is configured to rectify the boosted audio signal input from the input end of the rectifying unit to obtain a level, and to output the level to an input end of the filtering unit via an output end of the rectifying unit; and

the filtering unit is configured to filter the level input from the input end of the filtering unit to obtain a direct current level, and to output the direct current level to a power supply output pin of the output port via an output end of the filtering unit.

4. The audio signal adapter device according to claim 3, wherein

the boosting unit is a boosting transformer, comprising a primary coil and a secondary coil;

one pin of the primary coil is used as the input end of the boosting unit and connected with the first audio signal input pin, and the other pin of the primary coil is grounded; and

at least one output pin of the secondary coil is used as the output end of the boosting unit and connected with the input end of the rectifying unit, and a tap of the secondary coil is grounded.

5. The audio signal adapter device according to claim 3, wherein the rectifying unit comprises at least one diode, an anode of the at least one diode is connected with the input end of the rectifying unit, and a cathode of the at least one diode is connected with the output end of the rectifying unit.

6. The audio signal adapter device according to claim 4, wherein

the secondary coil of the boosting transformer comprises two output pins;

the input end of the rectifying unit comprises two input pins;

the two output pins of the secondary coil are connected with the two input pins of the rectifying unit respectively; and

the rectifying unit comprises two diodes, and anodes of the two diodes are connected with the two input pins of the rectifying unit respectively.

7. The audio signal adapter device according to claim 3, wherein

the filtering unit comprises a capacitor;

one end of the capacitor is connected with the input or output end of the filtering unit; and

the input end of the filtering unit is connected with the output end of the filtering unit.

8. The audio signal adapter device according to claim 1, wherein the first audio signal input pin comprises a left-channel pin and/or a right-channel pin.

9. The audio signal adapter device according to claim 2, wherein the first audio signal input pin comprises a left-channel pin and/or a right-channel pin.

10. The audio signal adapter device according to claim 3, wherein the first audio signal input pin comprises a left-channel pin and/or a right-channel pin.

11. The audio signal adapter device according to claim 4, wherein the first audio signal input pin comprises a left-channel pin and/or a right-channel pin.

12. The audio signal adapter device according to claim 5, wherein the first audio signal input pin comprises a left-channel pin and/or a right-channel pin.

13. The audio signal adapter device according to claim 6, wherein the first audio signal input pin comprises a left-channel pin and/or a right-channel pin.

14. The audio signal adapter device according to claim 7, wherein the first audio signal input pin comprises a left-channel pin and/or a right-channel pin.