

Claims

[Claim 1]

A soundproof housing for an earset, the housing comprising:

a housing main body coupled with the inside of a front surface case having a case body and a protrusion portion extended from the case body and inserted into the ear, and provided with a speaker accommodation groove for accommodating a speaker and a microphone accommodation groove for accommodating a microphone;

a speaker output hole penetratingly formed in the speaker accommodation groove so as to communicate with the front surface case and adjacent to an output end of the speaker; and

a microphone input hole penetratingly formed in the microphone accommodation groove so as to communicate with the front surface case and adjacent to an input end of the microphone,

wherein the housing main body protrudes toward the inside of a protrusion portion of the front surface case so as to be tightly coupled with the inside of a protrusion portion of the front surface case.

[Claim 2]

The housing of the claim 1,

wherein the inside of the case body and the inside of the protrusion portion communicate with each other, the outside of the protrusion portion has an opening, and the output hole of the speaker and the input hole of the speaker are directly exposed to the outside of the protrusion portion.

[Claim 3]

The housing of claim 1,

wherein the housing main body contains a first soundproof housing; and a second soundproof housing removably combined with the first soundproof housing and coupled with the inside of the front surface case.

[Claim 4]

The housing of claim 3,

wherein the first soundproof housing and the second soundproof housing, in order to block an inflow of noise, are obturated by at least one of the following: a rubber ring, an adhesive, or an interference fit.

- [Claim 5] The housing of claim 3,
wherein the housing further contains an output guiding portion formed to be indented and stepped on the second soundproof housing and adjacent to the speaker output hole so as to guide output signals from the output end of the speaker into the speaker output hole.
- [Claim 6] The housing of claim 3,
wherein the housing further contains an input guiding portion formed to be indented and stepped on the second soundproof housing and adjacent to the microphone input hole so as to guide input signals from the microphone input hole into the input end of the microphone.
- [Claim 7] The housing of claim 3,
wherein the housing further contains an input guiding portion that protrudes toward the outside of the second soundproof housing and adjacent to the microphone input hole so as to guide input signals from the microphone input hole into the input end of the microphone.
- [Claim 8] The housing of claim 3,
wherein the housing further contains at least one back hole that is penetratingly formed in the second soundproof housing and inputs signals into the rear of the input end of the microphone; and a back hole guiding portion formed to be indented and stepped on at least either the inside or the outside of the back hole.
- [Claim 9] The housing of claim 1,
wherein a cross section of the speaker accommodation groove and the microphone accommodation groove is at least one form of the following: a quadrangle, a rectangle, a circle, or an oval.
- [Claim 10] A soundproof housing for an earset containing a housing main body coupled with the inside of a front surface case having a case body and a protrusion

portion extended from the case body and inserted into the ear, and provided with a speaker accommodation groove for accommodating a speaker and a microphone accommodation groove for accommodating a microphone, wherein the housing main body contains a speaker output hole penetratingly formed in the speaker accommodation groove so as to communicate with the front surface case and adjacent to an output end of the speaker; and a microphone input hole penetratingly formed in the microphone accommodation groove so as to communicate with the front surface case and adjacent to an input end of the microphone, and the housing main body protrudes toward the inside of a protrusion portion of the front surface case so as to be tightly coupled with the inside of a protrusion portion of the front surface case, wherein a speaker housing portion with a speaker accommodation groove for accommodating a speaker and a microphone housing portion with a microphone accommodation groove for accommodating a microphone are separately formed.

[Claim 11] The housing of either claim 1 or claim 10, wherein the housing contains a display that shows a direction for combination with the front surface case.

[Claim 12] A soundproof housing for an earset, the housing comprising:
a housing main body coupled with the inside of a front surface case having a case body and a protrusion portion extended from the case body and inserted into the ear, and provided with a speaker accommodation groove for accommodating a speaker and a microphone accommodation groove for accommodating a microphone;
a speaker output hole penetratingly formed in the speaker accommodation groove so as to communicate with the front surface case and adjacent to an output end of the speaker; and
a microphone input hole penetratingly formed in the microphone accommodation groove so as to communicate with the front surface case and adjacent to an input end of the microphone; and

a guiding portion formed to be indented and stepped on at least either the speaker accommodation groove or the microphone accommodation groove so as to guide signals moving through the speaker output hole or the microphone input hole.

[Claim 13] The housing of claim 12,
wherein, in the housing main body, a speaker housing portion with a speaker accommodation groove for accommodating a speaker and a microphone housing portion with a microphone accommodation groove for accommodating a microphone are separately formed.

[Claim 14] A wired and wireless earset,
wherein the earset contains either a soundproof housing for an earset of either claim 1 or claim 13.

[Claim 15] A wired and wireless earset, the earset comprising:
a front surface case having a case body and a protrusion portion extended from the case body and inserted into the ear;
a rear surface case removably combined with the front surface case;
a first soundproof housing coupled with the inside of the rear surface case; and
a second soundproof housing containing a speaker accommodation groove for accommodating a speaker and a microphone accommodation groove for accommodating a microphone that are removably combined with the first soundproof housing, and containing a speaker output hole adjacent to the output end of the speaker and a microphone input hole adjacent to the input end of the microphone,
wherein the second soundproof housing is coupled with the inside of the protrusion portion of the front surface case so as to be tightly coupled with the inside of the protrusion portion of the front surface case, and the front surface case and the rear surface case, or the first soundproof housing and the second soundproof housing, are obturated with each other by means of at least one of the following: a rubber ring, an adhesive, or an interference fit.

[Claim 16] The earset of claim 15,
wherein the protrusion portion of the front surface case further contains a penetration hole corresponding to the microphone input hole and the speaker output hole, and an input guiding portion formed to be indented and stepped on the protrusion portion so as to guide input signals from the ear.

[Claim 17] The earset of claim 16,
wherein the earset further contains at least one back hole that is penetratingly formed in the second soundproof housing and inputs signals into the rear of the input end of the microphone; and a rear microphone hole penetratingly formed on the protrusion portion so as to correspond to at least one back hole above, wherein the input guiding portion is also formed on the protrusion portion adjacent to the rear microphone hole.

[Claim 18] A wired and wireless earset, the earset comprising:
a front surface case containing a case body, a speaker accommodation groove for accommodating a speaker formed at the inside of the protrusion portion, a microphone accommodation portion for accommodating a microphone, a speaker output hole adjacent to the output end of the speaker, and a microphone input hole adjacent to the input end of the microphone; and
a rear surface case removably combined with the front surface case.

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1. A soundproof housing for an earset, the soundproof housing comprising:

a housing main body coupled with the inside of a front surface case having a case body and a protrusion portion extended from the case body and inserted into the ear, and provided with a speaker accommodation groove for accommodating a speaker and a microphone accommodation groove for accommodating a microphone;

a speaker output hole penetratingly formed in the speaker accommodation groove so as to communicate with the front surface case and adjacent to an output end of the speaker; and

a microphone input hole penetratingly formed in the microphone accommodation groove so as to communicate with the front surface case and adjacent to an input end of the microphone,

wherein the housing main body protrudes toward the inside of a protrusion portion of the front surface case so as to be tightly coupled with the inside of a protrusion portion of the front surface case, and

wherein the soundproof housing further contains a groove that shows a direction for combination with the front surface case.

2. The soundproof housing of the claim 1,

wherein the inside of the case body and the inside of the protrusion portion communicate with each other, the outside of the protrusion portion has an opening, and the output hole of the speaker and the input hole of the speaker are directly exposed to the outside

of the protrusion portion.

3. The soundproof housing of claim 1,

wherein the housing main body contains a first soundproof housing; and a second soundproof housing removably combined with the first soundproof housing and coupled with the inside of the front surface case.

4. The soundproof housing of claim 3,

wherein the first soundproof housing and the second soundproof housing, in order to block an inflow of noise, are obturated by at least one of the following: a rubber ring, an adhesive, or an interference fit.

5. The soundproof housing of claim 3,

wherein the soundproof housing further contains an output guiding portion formed to be indented and stepped on the second soundproof housing and adjacent to the speaker output hole so as to guide output signals from the output end of the speaker into the speaker output hole.

6. The soundproof housing of claim 3,

wherein the soundproof housing further contains an input guiding portion formed to be indented and stepped on the second soundproof housing and adjacent to the microphone input hole so as to guide input signals from the microphone input hole into the input end of the microphone.

7. The soundproof housing of claim 3,

wherein the soundproof housing further contains at least one back hole that is penetratingly formed in the second soundproof housing and inputs signals into the rear of the input end of the microphone;

and a back hole guiding portion formed to be indented and stepped on at least either the inside or the outside of the back hole.

8. The soundproof housing of claim 7,

wherein a cross section of the speaker accommodation groove and the microphone accommodation groove is at least one form of the following: a quadrangle, a rectangle, a circle, or an oval.

9. A soundproof housing for an earset, the soundproof housing comprising:

a housing main body coupled with the inside of a front surface case having a case body and a protrusion portion extended from the case body and inserted into the ear, and provided with a speaker accommodation groove for accommodating a speaker and a microphone accommodation groove for accommodating a microphone;

a speaker output hole penetratingly formed in the speaker accommodation groove so as to communicate with the front surface case and adjacent to an output end of the speaker;

a microphone input hole penetratingly formed in the microphone accommodation groove so as to communicate with the front surface case and adjacent to an input end of the microphone; and

a guiding portion formed to be indented and stepped on at least one of the speaker

accommodation groove and the microphone accommodation groove so as to guide signals moving through the speaker output hole or the microphone input hole,

wherein the soundproof housing further contains a groove that shows a direction for combination with the front surface case.

10. A wired and wireless earset,

wherein the earset contains either a soundproof housing for an earset of either claim 1 or claim 9.

11. A wired and wireless earset, the wired and wireless earset comprising:

a front surface case having a case body and a protrusion portion extended from the case body and inserted into the ear;

a rear surface case removably combined with the front surface case;

a first soundproof housing coupled with the inside of the rear surface case; and

a second soundproof housing containing a speaker accommodation groove for accommodating a speaker and a microphone accommodation groove for accommodating a microphone that are removably combined with the first soundproof housing, and containing a speaker output hole adjacent to the output end of the speaker and a microphone input hole adjacent to the input end of the microphone,

wherein the second soundproof housing is coupled with the inside of the protrusion portion of the front surface case so as to be tightly coupled with the inside of the protrusion portion of the front surface case, and the second soundproof housing further contains a groove

that shows a direction for combination with the front surface case, and

wherein the front surface case and the rear surface case, or the first soundproof housing and the second soundproof housing, are obturated with each other by means of at least one of the following: a rubber ring, an adhesive, or an interference fit.

12. The earset of claim 11,

wherein the protrusion portion of the front surface case further contains a penetration hole corresponding to the microphone input hole and the speaker output hole, and an input guiding portion formed to be indented and stepped on the protrusion portion so as to guide input signals from the ear.

13. The earset of claim 12,

wherein the earset further contains at least one back hole that is penetratingly formed in the second soundproof housing and inputs signals into the rear of the input end of the microphone;

and a rear microphone hole penetratingly formed on the protrusion portion so as to correspond to at least one back hole above, wherein the input guiding portion is also formed on the protrusion portion adjacent to the rear microphone hole.