

DEVICE FOR CONNECTION BETWEEN AT LEAST ONE SMART CARD,
A READER AND THE HOST

The invention has for its object a device for connection between at least one smart card, a smart card reader and the host.

The device has for its object to facilitate the use
5 of a smart card in a smart card reader.

According to the state of the art, the user has his smart card reader of the PCMCIA type, for example, embodied directly in the host, in this instance the PC. The user must therefore have his "host" nearer him to have easy access to
10 his smart card reader. Moreover, for reasons of PCMCIA standards, the insertion and removal of a smart card in a reader are not very easy.

FR-A-2.743.464: The invention is an apparatus, for example a portable telephone, provided with a smart card
15 reader comprising a connector that can be placed in contact with the terminals of an integrated circuit on the smart card according to a first so-called full-SIM format, provided moreover with a removable housing adapted to be fixed in operating position facing the smart card reader, finally
20 provided with an adaptor permitting the introduction and reading of a smart card according to a second format a so-

called micro-SIM format, characterized in that the removable housing contains the adaptor, which adaptor consists of a cavity adapted to serve as a receptacle for a smart card according to the micro-SIM format, in that the removable housing comprises a device for holding in position the smart card according to the micro-SIM format in the cavity, and in that the cavity and the device for holding in position are so arranged that the terminals of the integrated circuit present on the micro-SIM card will be placed facing the connector of the smart card reader after insertion of said card.

- FR-A-2.743.463: The invention is an apparatus, for example a portable telephone, provided with a smart card reader comprising a connector that can be placed in contact with the terminals of an integrated circuit present on a smart card according to a first so-called full-SIM format, provided moreover with an adaptor permitting the introduction and reading of a smart card according to a second so-called micro-SIM format, characterized in that the adaptor is comprised by a removable and reversible piece having two surfaces, the first, so-called full-SIM surface, being practically smooth, the second, so-called micro-SIM surface, having a slide way and an abutment, and in that the apparatus is provided with a cavity serving as a receptacle for the adaptor, which cavity is so configured that, when the adaptor is disposed in the reading mode of a smart card in the full-SIM format, only its full-SIM surface will be apparent and disposed confronting the connector of the smart card reader, and when the adaptor is

disposed in the reading mode of a smart card in the micro-SIM format, only its micro-SIM surface will be apparent, the cavity serving as a receptacle for the adaptor as well as the slide in the abutment of this latter being disposed such that the terminals of the integrated circuit present on the micro-SIM card will be disposed facing the connector of the smart card reader after insertion of said card.

The invention tends to overcome all these problems.

To this end, the invention is comprised by a clamp which serves as a reader and connector for at least one card, said reading clamp ensuring the connection, by a communication protocol, with the host.

According to one embodiment, the electrical connection between said clamp serving as a reader and the connector between the smart card or cards and the host, is made of a cable with a communication protocol (USB, 12C, SPI, RS232, TO, T1 ...) or direct connection.

According to another embodiment, the electrical connection between the clamp serving as a reader and connected between the smart card or cards and the host, is made as an induction contact.

The clamp can be provided with an electronic communication component to ensure communication between the PCMCIA module and the smart card.

According to one embodiment, the clamp is provided with two connectors to receive two smart cards.



The clamp which serves as a reader and connector between the smart card or cards and the host is provided with a quick connection means.

The connection means is a suction cup.

5 The clamp according to the invention can be connected directly to a smart card reader of the PCMCIA type or the like and this so as to obtain a double, triple reader, etc.

10 The clamp has dimensions such that it leaves free a large surface of the smart card or cards to be able to display identification means individual to each card.

The identification means can be a photograph, a digital code, an access badge, ...

15 The recognition system of the digital imprint is indicated in the clamp, the fact of inserting the smart card into the clamp automatically places the thumb (of the user) for example into contact with the detector.

The clamp is provided with one or several abutments which detect the presence of a smart card in said clamp.

20 The accompanying drawings are given by way of indicative example but are not limiting. They show one embodiment of the invention. They will permit easy comprehension of the invention.

Figure 1 shows schematically the input of a PCMCIA type reader which is encased in the host or computer.

25 Figure 2 is a schematic view of the clamp, seen in plan.

Figure 3 is a cross-sectional view of the clamp shown in Figure 2.

Figure 4 is a cross-sectional view of another embodiment of the clamp in which the latter is provided with two connectors and two readers to receive two smart cards back to back.

Figure 5 is a perspective view of the open clamp with a smart card in place.

Figure 6 is a view of the clamp connected by a connection grip in the module PCMCIA.

Figure 7 is a schematic view of a computer with the clamp fixed by its securement means on the chassis of the screen, the clamp displaying identification means of the card, the clamp is connected to a PCMCIA module, which is itself encased in the host.

Figure 8 is a view according to Figure 7, but in which the clamp is directly connected to the host without using the PCMCIA module.

Figure 9 is a schematic view of a clamp which is directly connected to a smart card reader of the PCMCIA type or the like.

At present, the user has his smart card reader of the PCMCIA type 1 which is encased directly in the host, or in the computer 2.

All the users know that the insertion and extraction of a smart card in a reader is not something easy.

The device according to the invention is comprised by a clamp 3 which serves as a reader and connector for at least one smart card 4.

Said clamp 3 ensures the connection by a communication protocol with the host 2.

According to the embodiments shown in Figures 5, 6, 7 and 8, the connection 5 is carried out by a cable 5 with a communication protocol (USB, I2C, SPI, RS232, TO, T1, ...) or direct connection.

However, although it is not shown in the drawings, the clamp 3, according to the invention, could be electrically connected with the reader of the PCMCIA type 1 or with the host or computer 2, without contact, for example by induction.

The clamp 3 is provided with abutments 6 and 7, said abutments permitting maintaining and positioning the smart card 4 in said clamp.

According to one embodiment, these abutments can also serve as a detector for the presence of the smart card 4.

According to the embodiment shown in Figure 3, a detector 7 is positioned to detect the presence of the smart card 4.

The clamp 3 is comprised by two tongues 8, 9 articulated about an axle 10, the axle 10 being provided with a return spring 11 (the spring can serve as the axle).

The tongues 12 and 13 permit manipulating said clamp, according to the lever principle, relative to the transverse axle 10.

In the embodiment shown in Figure 4, the clamp 3 is provided with two connectors, a connector 14 and a connector 15. Thus, the clamp 3 shown in Figure 4 can receive two smart cards, a smart card 16 and a smart card 17.

5 In this embodiment, the two smart cards are positioned back to back, such that the chips of each card will be in contact with the corresponding connectors, namely the connector 14 for the tongue 8 of the clamp, the connector 15 for the tongue 9 of said clamp.

10 The clamp shown in perspective in Figure 5 uses the chip 18 of the smart card 16 as well as the positioning of said card 16 in the clamp 3.

15 Figure 6 shows the use of the clamp which is connected by a cable 5 to the reader of the PCMCIA type, or PCMCIA module 19. It is connected to this PCMCIA module by a connecting jack 20 of the clamp 3 in said PCMCIA module.

20 Figure 7 shows an embodiment according to Figure 6, in which the clamp 3, according to the invention, is connected by the cable 5 and the connection jack 20 by means of the PCMCIA module 19. This clamp 3, which serves as a reader and connector, between the smart card or cards and the host 2, is provided with a quick coupling means 21. In the figures, the quick coupling means 21 is a suction cup. As shown in Figures 7 and 8, this securement means 21 permits emplacing the clamp 3, according to the invention, the latter having dimensions such as to leave free a large surface 23 of the card 16 to be

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able to display identification means 22, such as a photograph, a digital recognition, an access badge, ...

In the embodiment shown in Figure 8, there are used the same reference numerals and it is only the clamp 3 that is connected directly by a cable 24, or other means, a smart card reader of the PCMCIA type 25, or the like, and this so as to obtain a double, triple, etc. reading.

REFERENCES

1. Smart card of the PCMCIA type
2. Host or computer
3. Clamp
- 5 4. Smart card
5. Cable
6. Abutment
7. Abutment
8. Tongue of clamp 3
- 10 9. Tongue of clamp 3
10. Axle
11. Return spring
12. Tongue
13. Tongue
- 15 14. Connector
15. Connector
16. Smart card
17. Smart card
18. Chip
- 20 19. PCMCIA module
20. Electrical connection
21. Quick securement means or suction cup
22. Identification means
23. Large free surface of the smart card
- 25 24. Cable
25. Smart card of the PCMCIA type

CLAIMS



1. Device for connection between at least one smart card (4), a smart card reader and a host (2), characterized by the fact

5 that it is comprised of a clamp (3) which serves as a reader and connector for at least one card (16), said reading clamp (3) ensuring the connection, by a communication protocol, with the host (2).

2. Device according to claim 1, characterized by the fact

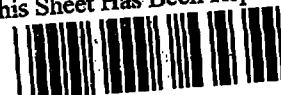
5 that the electrical connection between said clamp (3) serving as a reader and the connector (14, 15) between the smart card or cards (16, 17) and the host (2), is comprised by a cable (5, 24) with a communication protocol (USB, I2C, SPI, RS232, ...).

3. Device according to claim 1, characterized by the fact

5 that the electrical connection between said clamp (3) serving as a reader and connector between the smart card or cards (16, 17) and the host (2), is carried out without contact, by induction.

4. Device according to claim 1, characterized by the fact

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that the clamp (3) is provided with an electronic communication component to ensure communication between the PCMCIA module (19) and the smart card (16, 17).

5 5. Device according to claim 1, characterized by the fact

 that the clamp (3) is in direct connection with the PCMCIA module (19) and the smart card (16, 17).

 6. Device according to claim 1, characterized by the fact

 that the clamp (3) is provided with two connectors (14, 15) to receive two smart cards (16, 17).

 7. Device according to claim 1, characterized by the fact

 that the clamp (3) serves the office of double reader and connector for two cards (16, 17), disposed back to back, each chip (18) being in contact with one of the connector readers carried by each tongue (12, 13) of the clamp (3).

5 8. Device according to any one of claims 1, 2, 3, 4, 5, 6 or 7 characterized by the fact

 that the clamp (3) serves as a reader and connector between the smart card or cards (16, 17) and the host (2) is provided with rapid securement means (21).

 9. Device according to claim 8, characterized by the fact

 that the securement means (21) is a suction cup.

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10. Device according to claim 1, characterized by the fact

that the clamp (3) is connected directly to a smart card reader of the PCMCIA type (25) or the like and this in a manner to obtain a double, triple, ... reader.

11. Device according to claim 1, characterized by the fact

that the clamp (3) has dimensions such that it leaves free a large surface (23) of the smart card or cards to be able to display identification means (22) individual to each card (4, 16 or 17).

12. Device according to claim 1, characterized by the fact

that the identification means can be a photograph, a digital identification, an access badge, ...

13. Device according to claim 1, characterized by the fact

that the clamp (3) is provided with one or several abutments (6, 7) which detect the presence of a smart card (4, 16 or 17) in said clamp (3).

