Serial data bus with ultrasound connector

Abstract

The developed invention may be used in all those systems where it is necessary to establish a wired connection for the transmission of information between two or more electronic modules. The serial data bus is well suited to replace traditional connectors in case of an environment characterized by the presence of oxidizing agents or high electromagnetic pollution and finds application in the consumer sector, for long-distance links or in the automotive field.

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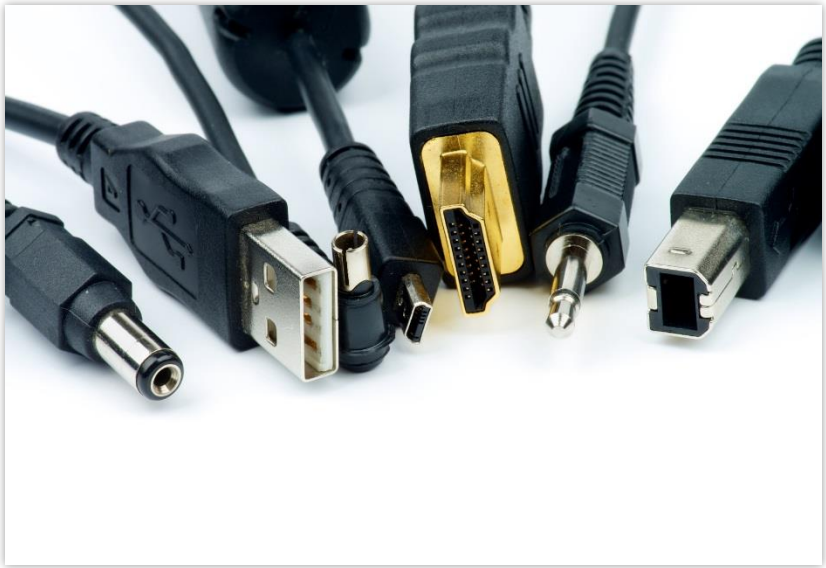

- data transmission
- electric signals
- ultrasound connector
- piezocercamic transducer
- serial bus

Research Support and Technology Transfer Department
telephone: +39 011 090 6317 - email: innovazione@polito.it

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Serial data bus with ultrasound connector

Description

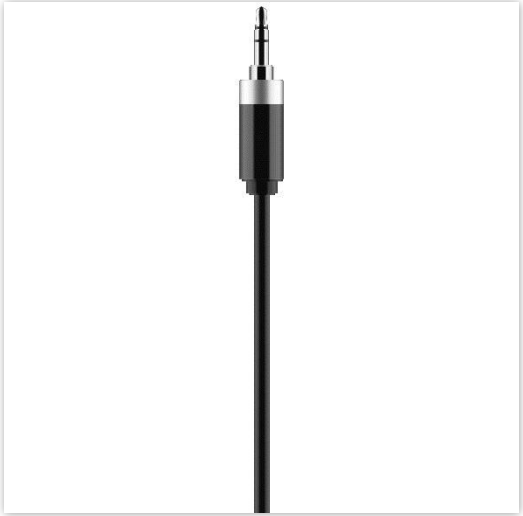
The presented connector arises from the necessity to overcome the main limitations of communication systems that are currently available on the market, which descend in a large part from the presence of sliding contacts. In the new serial data bus, the transfer of information occurs through a transmitter, a receiver, compression means, a microcontroller adapted to handle a bidirectional connection and various interfaces that perform the conversion of electrical signals into ultrasound or viceversa. Such an operation is achieved by means of a piezoceramic transducer, which is placed in contact with a plate of conductive or insulating material characterized by high acoustic impedance. The proposed system allows to increase the immunity to interference and electromagnetic noise coming from external sources or electrical cables, requires no sliding contacts and contemporaneously provides insulation between the employed wiring and the circuits of electronic modules that are put in communication.

Applications

The developed invention may be used in all those systems where it is necessary to establish a wired connection for the transmission of information between two or more electronic modules in airtight containers. The proposed serial data bus is well suited to replace traditional connectors in case of an environment characterized by the presence of oxidizing agents or high electromagnetic pollution and finds application in the consumer sector, for long-distance links or in the automotive field.

Advantages

The described system allows for putting in communication a plurality of electronic modules through low-cost wiring and proves to be immune from electromagnetic noise absorbed by the cables without the use of additional components. Furthermore, the connectors employed do not display ohmic contacts exposed to the external environment, hence the electrical conduction is not affected by oxidation or the mechanical wear resulting from their mutual friction.



innovazione@polito.it

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