## Claims

1. A method for coding communication conductors of a linear sensor belonging to a system, the system comprising a central unit (8) and a plurality of linear sensors (500) each comprising a first end and a second end and which are connected to one another in series to form a differential bus, which is functionally connected to said central unit by at least one end of said differential bus, each linear sensor comprising at least:

- a first connector (430) at a first end of said linear sensor, the first connector (430) comprising a management module (210) connected to a communication module (410),

- a second connector (440) at a second end of said linear sensor,

- two communication conductors (416), the two communication conductors being connected to the first connector (430) at a first end of said two communication conductors, and to the second connector (440) at a second end of said two communication conductors,

the method comprises the following steps:

- coding at least two information signals simultaneously as follows:

at least one information signal being coded by the central unit (8) by increasing voltage T on the first communication conductor,

at least one information signal being coded by the central unit (8) by decreasing voltage T on the second communication conductor,

- the central unit reading a voltage by measuring the voltage difference between the two communication conductors,

and characterized in that the system also comprises at least one accessory corresponding to a branch, the accessory comprising at least one output configured to branch linear sensors and/or accessories.

2. The method according to claim 1, characterized in that the system also comprises at least one accessory corresponding to a terminator.

3. The method according to claim 1 or 2, characterized in that the system also comprises at least one accessory corresponding to a neutral cable.

4. The method according to any one of the preceding claims, characterized in that the information signal is sent by the central unit in the form of information bits.

5. The method according to claims 1 to 4, characterized in that the central unit is arranged to send at least one general request to the differential bus and to receive at least one response to said general request from the plurality of linear sensors and the at least one accessory, the method also comprising the following steps:

- communicating the at least one general request (RG) sent by the central unit through the plurality of linear sensors (5001 to 5004) and/or the at least one accessory via the two communication conductors,

- communicating the at least one response to the general request (RRG) sent by said plurality of linear sensors (5001 to 5004) and/or by the at least one accessory via the two communication conductors.

6. The method according to claim 1 and according to any one of claims 2 to 5, characterized in that each linear sensor and/or accessory is arranged to send at least one local request and to receive at least one response to the at least one local request from each linear sensor and/or accessory, the method further comprising the following steps:

- communicating, via the two communication conductors, the at least one local request (RL) to at least one linear sensor identified by said linear sensor (5001 to 5004) and/or by the at least one accessory, the at least one linear sensor being considered as identified if one of its connectors (430 or 440) is connected to one of the connectors (430 or 440) of said linear sensor and/or to the at least one output of the at least one accessory,

- communicating, via the two communication conductors, at least one response to at least one local request (RRL) from the linear sensor identified by said linear sensor (5001 to 5004) and/or accessory.

7. The method according to claim 1 and according to any one of claims 2 to 6, characterized in that each linear sensor (5001 to 5004) and/or accessory is characterized by a unique identifier.

8. The method according to claims 5 and 7, characterized in that the at least one response to the at least one general request sent by the linear sensor comprises the unique identifier of the at least one linear sensor identified by said linear sensor as well as the unique identifier of said linear sensor (5001 to 5004), and/or the at least one response to the at least one general request sent by the accessory comprises the unique identifier of the at least one linear sensor identified by said accessory as well as the unique identifier of said accessory.

9. The method according to claim 6 and according to any one of claims 7 to 8, characterized in that the at least one response to the local request (RRL) is composed of the unique identifier of the at least one linear sensor identified by said linear sensor (5001 to 5004) and/or the accessory.

10. The method according to claims 5 and 6 and according to any one of claims 7 to 9, characterized in that the at least one response to the local request (RRL) and the at least one response to the general request (RRG) also comprise data specific to each linear sensor (5001 to 5004) and/or accessory.

11. The method according to any one of the preceding claims, characterized in that communication on the communication conductors is two-way.

12. A system for implementing the method according to the preceding claims 1 to 11, the system comprising a central unit (8) and a plurality of linear

sensors (5001 to 5004) each comprising a first end (430) and a second end (440) and which are connected to one another to form a sensing line, which is connected to said central unit (8) by at least one end of said sensing line, the system also comprising at least one accessory.

13. A computer program product comprising instructions which, when the program is executed by a computer, cause the latter to implement the steps of the method according to any one of claims 1 to 11.