Claims

1 Transportation system with guides for guided transportation vehicles (10), wherein the transportation vehicles (10) are supplied with electric current via a contact line (12),
characterised in that the transportation vehicles (10) are also supplied with data from a control unit (3) via the same contact line (12).

2 Transportation system as claimed in claim 1, characterised in that the contact line (12) is divided into sections (I, II, III, IV) for data supply purposes, wherein one or a plurality of transportation vehicles (10) are located in each section (I, II, III, IV) at one time and each section (I, II, III, IV) is supplied only with the data for the respective transportation vehicles (10).

3 Transportation system as claimed in claim 1 or 2, characterised in that the contact line (12) is divided into sections (I, II, III, IV) for data supply purposes, wherein only one transportation vehicle (10) is located in each section (I, II, III, IV) at one time and each section (I, II, III, IV) is supplied only with the data for the respective transportation vehicle (10).

4 Transportation system as claimed in any one of the preceding claims, characterised in that a plurality of sections (I, II, III, IV) have a parallel feed from the same current source (4, 7).

5 Transportation system as claimed in any one of the preceding claims, characterised in that a filter device (9) is connected between the current feed and the data feed of each contact line section (I, II, III, IV) to prevent the data signals skipping over into the power network.

6 Transportation system as claimed in claim 5, characterised in that the filter device (9) has an inductor and/or a capacitor or only an inductor.

7 Transportation system as claimed in any one of the preceding claims, characterised in that a device (8) is provided for targeted modulation of the data to the current for the supply to a specific transportation vehicle (10) in a contact

line section (I, II, III, IV) and in each vehicle (10) a device (15) is provided for demodulation of the data from the current.

8 Transportation system as claimed in any one of the preceding claims, characterised in that the guides are railway tracks (11) and the transportation vehicles are rail-bound transportation vehicles (10).

9 Transportation system as claimed in any one of the preceding claims, characterised in that the transmitted net data transmission rate of the contact line (12) is so low that the required gross data transmission rate is high enough to transmit the required quantity of data.

10 Transportation system as claimed in claim 9, characterised in that the net data transmission rate is between 10 and 50 kBaud, preferably between 20 and 30 kBaud.

11 Method for operating and controlling a transportation system with guides for guided transportation vehicles (10), wherein the transportation vehicles (10) are supplied with electric current via a contact line (12), characterised in that the transportation vehicles are also supplied with data from a control unit (3) via the same contact line.

12 Method as claimed in claim 11, characterised in that the contact line is divided into sections (I, II, III, IV) for data supply purposes, wherein one or a plurality of transportation vehicles (10) are located in each section at one time and each section (I, II, III, IV) is addressed only with the data for the respective transportation vehicles (10).

13 Method as claimed in claim 11 or 12, characterised in that the contact line is divided into sections (I, II, III, IV) for data supply purposes, wherein only one transportation vehicle (10) is located in each section at one time and each section (I, II, III, IV) is addressed only with the data for the respective transportation vehicle (10).

14 Method as claimed in any one of the preceding claims 11 to 13, characterised in that one or a plurality of sections (I, II, III, IV) are supplied from the same current source (4, 7).

15 Method as claimed in any one of the preceding claims 11 to 14, characterised in that the data transmission is effected by means of targeted modulation of the data to the current for the supply to a specific transportation vehicle (10) in an addressed contact line section (I, II, III, IV) and demodulation of the data from the current is effected in each vehicle (10).

16 Method as claimed in any one of the preceding claims 9 *[sic]* to 15, characterised in that the used net data transmission rate is so low that the required gross data transmission rate is high enough to transmit the required quantity of data.

17 Method as claimed in claim 16, characterised in that the net data transmission rate is between 10 and 50 kBaud, preferably between 20 and 30 kBaud.

18 Method as claimed in any one of the preceding claims 11 to 17, characterised in that crosstalk of the data transmission from one addressed contact line section to a non-addressed contact line section is prevented by means of a filter device (9).

19 Use of the system as claimed in any one of claims 1 to 10 and/or of the method as claimed in any one of claims 11 to 18 in a storage and transportation system having one or a plurality of levels with associated conveyor technology, racks and workstations.

20 Use of the system as claimed in any one of claims 1 to 10 and/or of the method as claimed in any one of claims 11 to 18 in a storage and transportation system having at least one rack with rack bays disposed on both sides of an aisle on a plurality of levels, and rails, extending along the levels of the rack in the aisles, for rail-bound transportation vehicles for supplying goods to, and removing them from, the rack bays.

21 Use of the method as claimed in any one of claims 11 to 18 in offline operation with reduced transmission redundancy and/or an increased data transmission rate in order to effect an increase in the net data transmission speed to the stationary transportation vehicles.

22 Use of the method as claimed in any one of claims 11 to 18 as a method for measuring the quality of the current collectors of the transportation vehicles, wherein the transmission quality is monitored and deterioration therein serves as a measurement for the wearing out of the current collectors.

CLAIMS

1 A transportation system with guides for guided transportation vehicles, wherein the transportation vehicles are supplied with electric current via a contact line, wherein the transportation vehicles are also supplied with data from a control unit via the same contact line wherein the contact line is divided into sections for data supply purposes, wherein one or a plurality of transportation vehicles are located in each section at one time and each section is supplied only with the data for the one or the plurality of transportation vehicles located thereon.

2 A transportation system according to claim 1, wherein the contact line is divided into sections for data supply purposes, wherein only one transportation vehicle is located in each section at one time and each section is supplied only with the data for the respective transportation vehicle.

3 A transportation system in accordance with any one of the preceding claims, wherein a plurality of sections have a parallel feed from the same current source.

4 A transportation system as claimed in any one of the preceding claims, wherein a filter device is connected between the current feed and the data feed of each contact line section to prevent the data signals skipping over into the power network.

5 Transportation system in accordance with any one of the preceding claims, wherein a device is provided for targeted modulation of the data to the current for the supply to a specific transportation vehicle in a contact line section and in each vehicle a device is provided for demodulation of the data from the current.

6 A transportation system in accordance with any one of the preceding claims, wherein the transmitted net data transmission rate of the contact line is so low that the required gross data transmission rate is high enough to transmit the required quantity of data.

7 A method for operating and controlling a transportation system with guides for

guided transportation vehicles, wherein the transportation vehicles are supplied with electric current via a contact line, wherein the transportation vehicles are also supplied with data from a control unit via the same contact line, and wherein the contact line is divided into sections for data supply purposes, wherein one or a plurality of transportation vehicles are located in each section at one time and each section is addressed only with the data for the one or the plurality of transportation vehicles located thereon.

8 A method according to claim 7, wherein the contact line is divided into sections for data supply purposes, wherein only one transportation vehicle is located in each section at one time and each section is addressed only with the data for the respective transportation vehicle.

9 A method in accordance with claim 7 or 8, wherein one or a plurality of sections are supplied from the same current source.

10 A method in accordance with any one of claims 7 to 9, wherein the data transmission is effected by means of targeted modulation of the data to the current for the supply to a specific transportation vehicle in an addressed contact line section and demodulation of the data from the current is effected in each vehicle.

11 A method in accordance with any one of claims 7 to 10, wherein the used net data transmission rate is so low that the required gross data transmission rate is high enough to transmit the required quantity of data.

12 A system as claimed in any one of claims 1 to 6 and/or the method as claimed in any one of claims 7 to 11 wherein the transportation system further comprises one or a plurality of levels with associated conveyor technology, racks and workstations.

13 The system as claimed in any one of claims 1 to 6 and/or the method as claimed in any one of claims 7 to 11 wherein the transportation system further comprises at least one rack with rack bays disposed on both sides of an aisle on a plurality of levels, and rails, extending along the levels of the rack in the aisles,

for rail-bound transportation vehicles for supplying goods to, and removing them from, the rack bays.

14 Use of the method as claimed in any one of claims 7 to 11 in offline operation with reduced transmission redundancy and/or an increased data transmission rate in order to effect an increase in the net data transmission speed to the stationary transportation vehicles.

15 Use of the method as claimed in any one of claims 7 to 11 as a method for measuring the quality of the current collectors of the transportation vehicles, wherein the transmission quality is monitored and deterioration therein serves as a measurement for the wearing out of the current collectors.