Claims

1. Data transfer device with an elongated hollow profile (9) with a hollow chamber (10) extending in a longitudinal direction (L) of the hollow profile (9) and a longitudinal slot (8) extending in the longitudinal direction (L) and a transmitting and/or receiving unit (16), wherein the elongated hollow profile is a slotted hollow conductor (9) and the transmitting and/or receiving unit is an antenna (16) for transferring data to and from the slotted hollow conductor (9), and wherein the hollow profile (9) and/or the transmitting and/or receiving unit (16) for retracting or extending the transmitting and/or receiving unit (16) into the longitudinal slot (8) of the hollow profile (9) can be moved relative to one another in at least one positioning direction (Z) by means of a positioning device (11), **characterized in** that converging guide walls (5, 5') of an insertion cone (4) end in the longitudinal slot (8) of the hollow profile (9), and that a return mechanism (21, 21') is provided, which, upon deviation of the transmitting and/or receiving unit (16) from a predefined position at rest in the positioning direction (Z) away from the longitudinal slot (8), exerts a return force on the transmitting and/or receiving unit (16) in in the direction of the longitudinal slot (8).

2. The data transfer device as in Claim 1, **characterized in** that the positioning device (11) comprises a drive, in particular a linear drive (23, 24) for moving the transmitting and/or receiving unit (16) and/or the hollow profile (9) in the positioning direction (Z).

3. The data transfer device as in Claim 1 or 2, **characterized in** that the transmitting and/or receiving unit (16) is mounted by means of a bearing (18, 18') on a support (12) so as to be able to move in the positioning direction (Z), with at least one return element, in particular a return spring (21, 21') of the

return mechanism, is disposed between the transmitting and/or receiving unit (16) and the support (12).

4. The data transfer device as in Claim 3, **characterized in** that the bearing comprises sliding contact bearings (18, 18') disposed on the support (12) and guide elements (17, 17') moving in said bearings and disposed on the transmitting and/or receiving unit (16).

5. The data transfer device as in any one of the preceding claims, **characterized in** that the transmitting and/or receiving unit (16) and the hollow profile (9) are disposed so as to be able to move relative to one another in a transverse direction (Q) extending transversely relative to the positioning direction (Z).

6. The data transfer device as in Claim 5, **characterized in** that a return mechanism (30, 31) is provided, which, upon deviation of the transmitting and/or receiving unit (16) and/or the hollow profile (9) in the transverse direction (Q) from a predefined center position, exerts a return force in the direction of the center position on the transmitting and/or receiving unit (16) and/or the hollow profile (9).

7. The data transfer device as in any one of the preceding claims, **characterized in** that the transmitting and/or receiving unit (16), at least in the area in which it engages the longitudinal slot (8), is enclosed by a protective sleeve, in particular by an electrically insulating protective sleeve.

8. The data transfer device as in any one of the preceding claims, **characterized in** that the longitudinal slot (8) is longer than, preferably at least twice as long as, the width of the transmitting and/or receiving unit (16) in the longitudinal direction of the longitudinal slot (8).

9. A device (1) for conductively transferring electrical power between a charging station (3) and an electrical consumer (AGV) that moves relative to the charging station (3), with the device (1) comprising a charging head (2) with contact elements (14, 14') for establishing an electrical connection between the electrical consumer (AGV) and the charging station (3), **characterized in** that the device (1) comprises a data transfer device as in any one of the preceding claims.

10. The device (1) as in Claim 9, **characterized in** that the charging head (2) is disposed on the charging station (3) and the hollow profile (9) is disposed on the electrical consumer (AGV) or vice versa.

11. The device (1) as in Claim 9 or 10, **characterized in** that the longitudinal slot (8) of the hollow profile (9) extends substantially in the vertical or horizontal direction.

12. The device (1) as in Claim 9, 10 or 11, **characterized in** that the transmitting and/or receiving unit (16) is disposed on a contact support (12) of the charging head (2).

13. The device (1) as in Claim 12, **characterized in** that the transmitting and/or receiving unit (16) is disposed on an insertion tip (12a) of the contact support (12) facing in the positioning direction (Z).

14. The device (1) as in Claim 13, **characterized in** that the transmitting and/or receiving unit (16) can be at least partially recessed in the insertion tip (12a).

15. The device (1) as in one of Claims 12 to 14, **characterized in** that the contact support (12) has a conical cross section.