Claims

1. A method of transmitting information within a synchronous area of an electric power grid, the electric power grid comprising one or more power devices arranged to provide electric current to and/or consume electric current from the electric power grid, electricity flowing in the electric power grid in accordance with a grid frequency, the method comprising:

modulating power flow to and/or from one or more power devices in accordance with a control pattern representing information to be transmitted,

thereby inducing a modulation in the grid frequency to provide a frequency modulation signal corresponding to said information to be transmitted.

2. A method according to claim 1, in which each of a distributed group of power devices is connected to the electric power grid, and the method comprises:

modulating power flow to and/or from each of the plurality of power devices in accordance with the control pattern, such that the consumption and/or provision of power by the plurality of power devices is coordinated to provide a collective modulation pattern that is detectable by the one or more receiving devices.

3. A method according to either of claim 1 and claim 2, comprising:

receiving, from a controller arranged to generate data indicative of the information that is to be transmitted across the electric power grid, first data indicative of first information to be transmitted; and

generating the control pattern on the basis of the received first data.

4. A method according to claim 3, in which data from the controller is received via an external communications network.

5. A method according to any of claim 1 to claim 4, comprising including in said modulation pattern one or more identifiers corresponding to said one or more receiving devices.

6. A method according to any of claim 1 to claim 5, in which the control pattern represents a sequence of control signals for controlling a switch, the switch being arranged to turn power flow to and/or from the power device on or off in accordance with a control signal, and the method comprises controlling the switch in accordance with the sequence of control signals.

7. A method according to any of claim 1 to claim 5, comprising controlling an attenuator to modulate power flow to and/or from the power unit.

8. A method according to any of claim 1 to claim 7, wherein said modulation of power flow comprises modulating a reactive power flow.

9. A method according to any of claim 1 to claim 8, wherein said control pattern defines a bit pattern of data, and the modulation pattern comprises a digital signal.

10. A method according to any of claim 1 to claim 8, wherein the modulation pattern comprises an analogue signal.

11. A method according to any of claim 1 to claim 10, wherein the modulation pattern includes identification data relating to a specific receiving device to which information is to be transmitted.

12. A method according to claim 11, wherein the identification data is only available to said device and to said specific receiver.

13. A method according to claim 11 or claim 12, wherein the identification data comprises a plurality of identifier types, each identifier type relating to a different property of the receiving device.

14. A method according to claim 13, wherein the plurality of identifier types include one or more of: a geographical location, a device operating characteristic, an

ownership group, a network address, a network address range, a telephone area code and a telephone number.

15. A method according to any preceding claim, comprising modulating power flow to and/or from one or more power devices at a frequency less than the grid frequency.

16. A method according to claim 15, comprising modulating power flow to and/or from one or more power devices at a frequency less than half of the grid frequency.

17. A method according to claim 16, comprising modulating power flow to and/or from one or more power devices at a frequency less than a quarter of the grid frequency.

18. A method according to claim 17, comprising modulating power flow to and/or from one or more power devices at a frequency less than a tenth of the grid frequency.

19. A method according to any preceding claim, comprising modulating power flow to and/or from one or more power devices at a frequency less than 10 Hz.

20. A method according to any preceding claim, in which an amplitude of the frequency modulation signal is less than 200 mHz.

21. A method of transmitting information within a synchronous area of an electric power grid, wherein each of a distributed group of said power devices is connected to the electric power grid, and the method comprises:

modulating power flow to and/or from each of said power devices in accordance with a method according to any of claim 1 to claim 20, comprising modulating power flow to and/or from a first one of the plurality of power devices at a

different time to the power flow to and/or from a second one of the plurality of power devices.

22. A device for use in transmitting information within a synchronous area of an electric power grid, the electric power grid comprising one or more power devices arranged to provide electric current to and/or consume electric current from the electric power grid, current flowing in accordance with a grid frequency, the device comprising:

a communications interface arranged to receive data corresponding to information that is to be transmitted to a receiver connected to said synchronous area of the power grid;

a processor arranged to generate, on the basis of the received data, a sequence of control signals corresponding to the information that is to be transmitted; and

a power flow modulator arranged to modulate, on the basis of the generated sequence of control signals, power flow to and/or from the one or more power devices, thereby inducing a modulation in the grid frequency to provide a modulation signal corresponding to said information to be transmitted.

23. A device arranged to perform a method according to any of claim 1 to claim 20.

24. A computer program including instructions to perform, on a computerised device, a method according to any one of claim 1 to claim 20.