

CLAIMS:

1. A system for transmitting alternating current power and communication signals between a first location and a second location via a communication path which includes at least one inductive load and at least one switching means for switching power to said at least one load on and off, the system including control means adapted for controlling said at least one switching means so that, if said power is switched on during a particular phase of the power, it is switched off during the opposite phase of the power and if, said power is switched off during a particular phase of the power, it is switched on during the opposite phase of the power.
2. A system according to claim 1, wherein said control means is further adapted for controlling said at least one switching means so that, in response to switching off said power, a direct current is applied to said at least one inductive load and, in response to actuation of said at least one switching means to switch said power on, said power is switched on during a phase of the power which results in a magnetisation of said at least one inductive load opposite to that resulting from said direct current.
3. A system according to claim 1 or 2, wherein at least one such inductive load is at said first location.
4. A system according to any preceding claim, wherein at least one such inductive load is at said second location.
5. A system according to any preceding claim, wherein at least one such switching means is at said first location.
6. A system according to any preceding claim, wherein at least one such switching means is at said second location.
7. A system according to any preceding claim, wherein said at least one inductive load comprises a winding of a transformer.
8. A system according to any preceding claim, comprising a power and communication system for a subsea well.

9. A system according to claim 8, wherein said first location is a topside location and said second location comprises a subsea electronics module.

10. A method for transmitting alternating current power and communication signals between a first location and a second location via a communication path which includes at least one inductive load and at least one switching means for switching power to said at least one load on and off, the method comprising controlling said at least one switching means so that, if said power is switched on during a particular phase of the power, it is switched off during the opposite phase of the power and, if said power is switched off during a particular phase of the power, it is switched on during the opposite phase of the power.

11. A method according to claim 10, wherein said controlling further comprises controlling said at least one switching means so that, in response to switching off said power, a direct current is applied to said at least one inductive load and, in response to actuation of said at least one switching means to switch said power on, said power is switched on during a phase of the power which results in a magnetisation of said at least one inductive load opposite to that resulting from said direct current.

12. A method according to claim 10 or 11, wherein at least one such inductive load is at said first location.

13. A method according to any of claims 10 to 12, wherein at least one such inductive load is at said second location.

14. A method according to any of claims 10 to 13, wherein at least one such switching means is at said first location.

15. A method according to any of claims 10 to 14, wherein at least one such switching means is at said second location.

16. A method according to any of claims 10 to 15, wherein said at least one inductive load comprises a winding of a transformer.

17. A method according to any of claims 10 to 16, performed in a power and communication system for a subsea well.

18. A method according to claim 17, wherein said first location is a topside location and said second location comprises a subsea electronics module.

Claims

1. A system for transmitting alternating current power and communication signals between a first location and a second location via a communication path which includes at least one inductive load (5 or 2) and at least one switching means (13 or 24 or 29) for switching power to said at least one load on and off, the system including control means (25, 21, 20; or 25, 23, 22; or 26, 27, 28) adapted for controlling said at least one switching means, characterised in that said control means is adapted so that, if said power is switched on during a particular phase of the power, it is switched off during the opposite phase of the power and if, said power is switched off during a particular phase of the power, it is switched on during the opposite phase of the power.
2. A system according to claim 1, wherein said control means (25, 21, 20; or 25, 23, 22; or 26, 27, 28) is further adapted for controlling said at least one switching means (13 or 24 or 29) so that, in response to switching off said power, a direct current is applied to said at least one inductive load (5 or 2) and, in response to actuation of said at least one switching means to switch said power on, said power is switched on during a phase of the power which results in a magnetisation of said at least one inductive load opposite to that resulting from said direct current.
3. A system according to claim 1 or 2, wherein at least one such inductive load (5) is at said first location.
4. A system according to any preceding claim, wherein at least one such inductive load (2) is at said second location.
5. A system according to any preceding claim, wherein at least one such switching means (13 or 24) is at said first location.
6. A system according to any preceding claim, wherein at least one such switching means (29) is at said second location.
7. A system according to any preceding claim, wherein said at least one inductive load comprises a winding of a transformer (5 or 2).
8. A system according to any preceding claim, comprising a power and communication system for a subsea well.
9. A system according to claim 8, wherein said first location is a topside location and said second location comprises a subsea electronics module (SEM).
10. A method for transmitting alternating current power and communication signals between a first location and a second location via a communication path which includes at least one inductive load (5 or 2) and at least one switching means (13 or 24 or 29) for switching power to said at least one load on and off, the method comprising controlling said at least one switching means, characterised in that, if said power is switched on during a particular phase of the power, it is switched off during the opposite phase of the power and, if said power is switched off during a particular phase of the power, it is switched on during the opposite phase of the power.
11. A method according to claim 10, wherein said controlling further comprises controlling said at least one switching means (13 or 24 or 29) so that, in response to switching off said power, a direct current is applied to said at least one inductive load (5 or 2) and, in response to

actuation of said at least one switching means to switch said power on, said power is switched on during a phase of the power which results in a magnetisation of said at least one inductive load opposite to that resulting from said direct current.

12. A method according to claim 10 or 11, wherein at least one such inductive load (5) is at said first location.
13. A method according to any of claims 10 to 12, wherein at least one such inductive load (2) is at said second location.
14. A method according to any of claims 10 to 13, wherein at least one such switching means (13 or 24) is at said first location.
15. A method according to any of claims 10 to 14, wherein at least one such switching means (29) is at said second location.
16. A method according to any of claims 10 to 15, wherein said at least one inductive load comprises a winding of a transformer (5 or 2).
17. A method according to any of claims 10 to 16, performed in a power and communication system for a subsea well.
18. A method according to claim 17, wherein said first location is a topside location and said second location comprises a subsea electronics module (SEM).