CLAIMS

1. An ablation device, the ablation device including a generator configured to generate electrical pulses with an amplitude from 100V to 5000V and coupled to at least one electrode, the generator comprising:

a power supply unit;

a capacitor unit; and

a DC/DC converter unit coupled between the capacitor unit and the electrode; and

wherein the DC/DC converter unit is configured to electrically disconnect the generator from the electrode in less than 50 ms.

2. The ablation device according to claim 1, wherein the ablation device is an ablation device for pulsed field ablation, and wherein the DC/DC converter unit comprises an output capacitor and an output capacitor emergency system; wherein the output capacitor emergency system is configured, when activated, to discharge the output capacitor and electrically disconnect the generator from the electrode.

3. The ablation device according to claim 2, wherein the output capacitor emergency system includes a safety discharge resistor configured to discharge the output capacitor.

4. The ablation device according to claim 2 or 3, wherein the output capacitor emergency system includes one of a thyristor or a contactor, wherein the thyristor or the contactor is configured to short the output capacitor.

5. The ablation device according to claim any one of claims 2 to 4, wherein the output capacitor emergency system is configured to discharge the output capacitor and to electrically disconnect the generator from the electrode in less than 50 ms.

6. The ablation device according to any one of claims 2 to 5, further comprising electrical control circuits configured to receive and evaluate data comprising at least one measured parameter from the ablation device, and further configured to activate the output capacitor emergency system when the measured parameter is out of predetermined boundaries.

7. The ablation device according to any one of the preceding claims, further

comprising a switching unit and wherein the DC/DC converter unit is coupled between the capacitor unit and the switching unit.

8. A generator for an ablation device, the generator configured to generate electrical pulses and coupled to at least one electrode, the generator comprising:

a power supply unit;

a capacitor unit; and

a DC/DC converter unit comprising an output capacitor; and

wherein the DC/DC converter unit is configured to discharge the output capacitor and electrically disconnect the generator from the electrode in less than 50 ms.

9. The generator according to claim 8, wherein the output capacitor has a capacitance from 1μF to 200μF and wherein the DC/DC converter unit includes a safety discharge resistor configured to discharge the output capacitor.

10. The generator according to claim 8 or 9, wherein the DC/DC converter unit comprises one of a thyristor or a contactor, and wherein the thyristor or the contactor is configured to short the output capacitor.

11. The generator according to any one of claims 8 to 10, wherein the DC/DC converter unit is configured to convert a capacitance of the capacitor unit into a capacitance of the output capacitor which is lower than the capacitance of the capacitor unit, and wherein the DC/DC converter unit has a conversion ratio of 1:1 to 1:6.

12. The generator according to any one of claims 8 to 11, wherein the DC/DC converter unit comprises a DC/Dc converter without feedback, two windings and a series resonant converter, and wherein the DC/DC converter unit is configured to limit leakage currents from the power supply unit to the electrode to less than 10 μA.

13. The generator according to any of claims 8 to 12, wherein the generator includes a switching unit and wherein the DC/DC converter unit is coupled between the capacitor unit and the switching unit.

14. The generator according to any of claims 8 to13, wherein the DC/DC converter unit has an input voltage from 100 V to 5000 V and an output voltage from 150 V to 5000 V.

15. A method of controlling of an ablation device for pulsed field ablation, the method comprising:

providing a generator and at least one electrode coupled to the generator, the generator comprising:

a power supply unit;

a capacitor unit; and

a DC/DC converter unit comprising an output capacitor and an output capacitor emergency system;

providing electrical control circuits coupled to the output capacitor emergency system and to at least one other part of the ablation device;

receiving data from the electrical control circuits, the data comprising at least one measured parameter from the at least one other part of the ablation device;

evaluating the data with the electrical control circuits;

activating the output capacitor emergency system; and

discharging the output capacitor and electrically disconnecting the generator from the electrode in less than 50 ms when the measured parameter is out of predetermined boundaries.

16. The method according to claim 15, the method further comprising the steps of: providing a safety discharge resistor in the DC/DC converter unit; and discharging the output capacitor to the safety discharge resistor.

17. The method according to claim 15 or 16, the method further comprising the steps of:

providing at least one of a thyristor or a contactor in the DC/DC converter unit; and shorting the output capacitor via one of the thyristor or the contactor.

18. The method according to any one of claims 15 to 17, wherein the measured parameter is one of a temperature, impedance, current or voltage.

19. The method according to any one of claims 15 to 18, wherein the measured parameter is a voltage and the method further comprises the step of measuring the voltage on an output of at least one of the power supply unit, the capacitor unit, or the DC/DC converter unit.

20. The method according to any one of claims 15 to 19, wherein the measured

parameter is a voltage and the method further comprises the steps of: providing a switching unit in the generator, the switching unit including at least one switch; and measuring the voltage on an output of at least one of the switching unit or the switch.