

C l a i m s

1. An arrangement (1) of electric components for controlling the delivery of electricity from an electrical grid to an electric vehicle (102), the arrangement comprising:
 - a first, a second, a third, and a fourth input terminals (11, 12, 13, 14), each for receiving an
5 electric signal from the electrical grid;
 - a first switching component (211) for controlling a connection between a neutral output terminal (20) connectable to the electrical vehicle (102) and the first input terminal (11);
 - a second switching component (212) for controlling a connection between a neutral output terminal (20) connectable to the electrical vehicle (102) and the second input terminal (12);
 - 10 - a third switching component (222) for controlling a connection between a first-phase output terminal (21) connectable to the electrical vehicle (102) and the second input terminal (12);
 - a fourth switching component (232) for controlling a connection between a first-phase output terminal (21) connectable to the electrical vehicle (102) and the third input terminal (13),
and
 - 15 - a fifth switching component (242) for controlling a connection between a first-phase output terminal (21) connectable to the electrical vehicle (102) and the fourth input terminal (14).
2. Arrangement (1) according to claim 1, comprising:
 - a further switching component (233) for controlling a connection between a second-phase
output terminal (22) connectable to the electrical vehicle (102) and the third input terminal (13),
20 and
 - a further switching component (244) for controlling a connection between a third-phase output terminal (23) connectable to the electrical vehicle (102) and the fourth input terminal (14).
3. Arrangement (1) according to claim 1, comprising:
 - a further switching component (231) for controlling a connection between the neutral output
25 terminal (20) and the third input terminal (13);
 - a further switching component (212) for controlling a connection between the first-phase output terminal (21) and the first input terminal (11); and
 - three further switching components (223, 233, 243) for controlling connections between a
second-phase output terminal (22) connectable to the electrical vehicle (102) and the second, the
30 third, and the fourth input terminals (12, 13, 14), respectively.
4. Arrangement (1) according to claim 3, comprising:
 - a further switching component for controlling a connection between a third-phase output
terminal connectable to the electrical vehicle (102) and the fourth input terminal.
5. An arrangement (1) of electric components for controlling the delivery of electricity from an
35 electrical grid to an electric vehicle (102), the arrangement comprising:

- a first, a second, a third, and a fourth input terminals (11, 12, 13, 14) for receiving electric signals from the electrical grid;
 - a first switching component (211) for controlling a connection between a neutral output terminal (20) connectable to the electrical vehicle (102) and the first input terminal (11);
 - 5 - a second switching component (221) for controlling a connection between a neutral output terminal (20) connectable to the electrical vehicle (102) and the second input terminal (12);
 - a third switching component (231) for controlling a connection between a neutral output terminal (20) connectable to the electrical vehicle (102) and the third input terminal (13);
 - a fourth switching component (212) for controlling a connection between a first-phase output terminal (21) connectable to the electrical vehicle (102) and the first input terminal (11);
 - 10 - a fifth switching component (222) for controlling a connection between a first-phase output terminal (21) connectable to the electrical vehicle (102) and the second input terminal (12);
 - a sixth switching component (232) for controlling a connection between a first-phase output terminal (21) connectable to the electrical vehicle (102) and the third input terminal (13);
 - 15 - a seventh switching component (223) for controlling a connection between a second-phase output terminal (22) connectable to the electrical vehicle (102) and the second input terminal (12);
 - an eighth switching component (233) for controlling a connection between a second-phase output terminal (22) connectable to the electrical vehicle (102) and the third input terminal (13), and
 - 20 - a ninth switching component (243) for controlling a connection between a second-phase output terminal (22) connectable to the electrical vehicle (102) and the fourth input terminal (14).
6. Arrangement (1) according to any of the preceding claims, wherein the first, the second, and the third input terminals (11, 12, 13) are connectable to a Terra-Neutral earthing system, so that:
- 25 - the first input terminal (11) receives a neutral electrical signal;
 - the second input terminal (12) receives a first-phase electrical signal; and
 - the third input terminal (13) receives a second-phase electrical signal.
7. Arrangement (1) according to claim 6, wherein the fourth input terminal (14) is connectable to the Terra-Neutral earthing system so that the fourth input terminal (14) receives a third-phase electrical signal.
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8. Arrangement (1) according to any of the claims 1 to 5, wherein the first and the second input terminals (11, 12) are connectable to any of an Isolated-Terra earthing system or a Terra-Terra earthing system, so that:
- the first input terminal (11) receives a first-phase electrical signal; and
 - 35 - the second input terminal (12) receives a second-phase electrical signal.

9. Arrangement (1) according to claim 8, wherein the third input terminal (13) is connectable to the any of an Isolated-Terra earthing system or a Terra-Terra earthing system, so that the third input terminal (13) receives a third-phase electrical signal.
10. Arrangement (1) according to any of the claims 1 to 5, wherein the first and the second
5 input terminals (11, 12) are connectable to a split-phase distribution system, so that:
- the first input terminal (11) receives a neutral electrical signal; and
 - the second input terminal (12) receives one of the two line electrical signals of the split-phase distribution system.
11. Arrangement (1) according to claim 10, wherein the third input terminal (13) is connectable
10 to the split-phase distribution system, so that the third input terminal (13) receives the remaining line electrical signal of the split-phase distribution system.
12. Arrangement (1) according to any of the preceding claims, wherein a switching component is a relay.
13. Arrangement (1) according to claim 12, wherein the relay is a contactor.
14. A charging station (100) for recharging an electric vehicle (102), the charging station (100)
15 comprising an arrangement (1) of electric components as described in any of the preceding claims.
15. Electric system connected to an electrical safety device (101) that is connected to an
20 electric grid, the electric system comprising a plurality of connectors for connecting the electrical safety device (101) with a set of charging stations (100) in accordance with claim 14, each connector carrying an electrical signal or ground in accordance with a predefined earthing system and electric power distribution type, wherein each charging station (100) is connected to at least a subset of the plurality of the connectors via the arrangement (1) in said charging station (100), and wherein each arrangement (1) is further connectable to an electric vehicle (102).