Patent claims:

1. A rechargeable battery discharge device for discharging rechargeable batteries with

(a) a first rechargeable battery connection for connecting a first rechargeable battery,

(b) a second rechargeable battery connection for connecting a second rechargeable battery,

(c) at least a third rechargeable battery connection for connecting a third rechargeable battery and

(d) a load connection for a load for dissipating an electric output during discharging of the rechargeable batteries,

characterized by

(e) a discharge circuit comprising

(i) a first short circuit switch,

(ii) a first voltmeter that is arranged to measure a first rechargeable battery voltage dropped across the first rechargeable battery connection,

(iii) a second short circuit switch,

(iv) a second voltmeter that is arranged to measure a second rechargeable battery voltage dropped across the second rechargeable battery connection,

(v) a third short circuit switch,

(vi) a third voltmeter that is arranged to measure a third rechargeable battery voltage dropped across the third rechargeable battery connection, and

(vii) a control unit,

(f) the control unit being designed to automatically carry out a method comprising the steps:

(i) for all voltmeters, detecting the respective rechargeable battery voltage,

(ii) when the respective rechargeable battery voltage exceeds a predetermined minimum voltage, connecting the corresponding

rechargeable battery into a series circuit with at least one other rechargeable battery and

(iii) when the respective rechargeable battery voltage does not exceed a minimum voltage, removing the corresponding rechargeable battery from the series circuit by means of the corresponding short circuit switch.

2. The rechargeable battery discharge device according to claim 1, characterized by

a load connected to the load connection in the form

(a) of an inverter for generating an AC voltage of a predetermined frequency (f) and voltage and/or

(b) a DC voltage converter for generating a DC voltage of a predetermined voltage from a DC voltage acting on the load connection.

3. The rechargeable battery discharge device according to one of the preceding claims, characterized by

a display for displaying the rechargeable batteries whose respective rechargeable battery voltage falls below the minimum voltage and/or the rechargeable battery connections whose connection contacts are short-circuited.

4. The rechargeable battery discharge device according to one of the preceding claims, characterized by a polarity reversal protection circuit for automatically

(i) detecting a rechargeable battery connected with the incorrect polarity and emitting a polarity reversal warning and/or

(ii) connecting the incorrectly connected rechargeable battery with the right polarity.

5. The rechargeable battery discharge device according to one of the preceding claims, characterized in that the control unit is configured to automatically carry out a method comprising the steps:
   (i) determining changes in rechargeable battery voltages over time and
   (ii) bridging the corresponding rechargeable battery by means of the corresponding short circuit switch and/or emitting a voltage disconnection warning when the change in rechargeable battery voltage over time lies outside of a predetermined tolerance interval.

6. The rechargeable battery discharge device according to one of the preceding claims, characterized in that the control unit is configured to automatically carry out a method comprising the step:
   connecting some of the rechargeable batteries into the series circuit, so that a sum of the rechargeable battery voltages lies within a predetermined target voltage interval, wherein the combination with the largest number of rechargeable battery voltages is selected when two or more combinations of rechargeable battery voltages lie within the target voltage interval.

7. The rechargeable battery discharge device according to one of the preceding claims, characterized by
   at least one heat sensor, in particular a thermal imaging camera, that is arranged to detect a temperature of at least one of the rechargeable batteries.

8. The rechargeable battery discharge device according to one of the preceding claims, characterized in that the control unit is configured to automatically carry out a method comprising the steps:
   (a) detecting a rechargeable battery that is connected to a rechargeable battery connection and does not exceed the minimum voltage,
   (b) closing a first switch element, especially a short circuit relay, of the short circuit switch of the rechargeable battery connection, or keeping said element closed,
   (c) closing a second switch element, especially a connecting relay, of the short circuit switch of the rechargeable battery connection, or keeping said element closed,
   (d) emitting a signal that encodes that the rechargeable battery can be removed,
   (e) detecting that no rechargeable battery is connected to the rechargeable battery connection,
   (f) opening the second switch element or keeping it open, then
   (g) opening the first switch element or keeping it open, and then
   (h) closing the second switch element.

9. The rechargeable battery discharge device according to one of the preceding claims, characterized in that
   (a) the inverter is connected to a power grid to which electrical consumers are connected,
   (b) the control unit is designed to automatically carry out a method featuring the steps:
      (i) detecting a target power output of the rechargeable battery discharge device and
      (ii) reducing a discharge output of the rechargeable batteries when an actual power output exceeds the target power output.

10. The rechargeable battery discharge device according to one of the preceding claims, characterized by
    (a) an electrical buffer store,
    (b) the control unit being designed to automatically carry out a method comprising the steps:
        (i) detecting the target power output of the rechargeable battery discharge device and
        (ii) loading the buffer store so that the actual power output does not exceed the target power output.

11. A method for discharging a plurality of rechargeable batteries comprising the automatically performed steps:
    (a) continuously measuring one rechargeable battery voltage of a plurality of rechargeable batteries,
    (b) connecting the rechargeable batteries whose rechargeable battery voltages do not fall below a predetermined minimum voltage into a series circuit, so that the rechargeable batteries are discharged, and
    (c) decontacting a rechargeable battery whose rechargeable battery voltage falls below the predetermined minimum voltage, so that it is no longer connected in series.

12. The method according to claim 11, characterized by the step:
    emitting a notification that encodes the rechargeable batteries whose respective rechargeable battery voltage falls below the minimum voltage and/or the rechargeable battery connections whose connection contacts are short-circuited.

13. The method according to claim 11 or 12, characterized by the steps:
    (i) detecting a rechargeable battery connected with the incorrect polarity and emitting a polarity reversal warning and/or
    (ii) connecting the incorrectly connected rechargeable battery with the right polarity.