WHAT IS CLAIMED IS:

1. In a thermal management system for a battery pack being used to drive high power electrical equipment, wherein the battery pack includes multiple cells located in at least one enclosure, and the thermal management system enables the cells to work at a predetermined range of temperature; the thermal management system comprising:

temperature adjustment means including at least one small temperature adjustment unit thermally connected to the cells;

an instrument including at least one temperature sensor to measure temperature of the cells and capable of outputting signals representative of the temperature, and including at least one environmental sensor to measure environmental condition and capable of outputting signals representative of the environmental condition; and

a microcontroller capable of receiving the signals from the temperature sensor and the environmental sensor, wherein the microcontroller measures and/or evaluates external heat sources and heat contained in the battery cells to obtain a predicted temperature value according to the signals of the temperature and the signals of the environmental condition and pre-decides whether or not to enable the temperature adjustment means;

wherein the temperature adjustment means further includes:

a large temperature adjustment unit having a thermal adjustment capacity greater

than the small temperature adjustment unit, the large temperature adjustment unit being thermally connected to the enclosure, a coolant being provided and thermally associated with the large temperature adjustment unit; and

at least one selection device for operating either of the small and large temperature adjustment units, wherein the microcontroller operates the selection device according to the signals of the temperature and the signals of the environmental condition to start the small temperature adjustment unit and/or the large temperature adjustment unit;

wherein the microcontroller operates the selection device operates the selection device to start the small temperature adjustment unit and/or the large temperature adjustment unit according to the signals of the temperature and the signals of the environmental condition, and with the heat capacity of the coolant flowing through the enclosure as buffer, pre-insulates effect of the external heat source outside of the enclosure.

2. The thermal management system of claim 1, wherein the cells are located in the enclosure, in which a coolant is provided and thermally associated with the large temperature adjustment unit.

3. The thermal management system of claim 2, further comprising a pump, a thermal conduit and a circulation conduit for the coolant, wherein the thermal conduit connects the enclosure to the pump, and the circulation conduit connects the switch

device to the enclosure.

4. The thermal management system of claim 1, wherein the instrument further includes a GPS unit that outputs position signals to the microcontroller.

5. The thermal management system of claim 1, wherein the instrument further includes a communication unit that is connected to the microcontroller and configured to receive environmental weather information.

6. In a method for a thermal management system for a battery pack being used to drive high power electrical equipment, the battery pack including multiple cells that are located in at least one enclosure, the thermal management system includes temperature adjustment means, sensing means, and a microcontroller, the temperature adjustment means including at least one small temperature adjustment unit thermally connected to the cells, at least one large temperature adjustment unit that has a thermal adjustment capacity greater than the small temperature adjustment unit and is thermally connected to the enclosure, and at least one selection device for operating either of the small and large temperature adjustment units, and a coolant being provided and thermally associated with the large temperature adjustment unit, the sensing means including at least one temperature sensor to measure temperature of the cells, and at least one environmental sensor to evaluate environmental condition, so that the cells are maintained at a predetermined range of temperature; the method comprising:

(a) configuring the temperature sensor to measure temperature of the cells and to output signals representative of the temperature, and configuring the environmental sensor to evaluate environmental condition and to output signals representative of the environmental condition; and

(b) configuring the microcontroller to measure and/or evaluate external heat sources and heat contained in the battery cells to obtain a predicted temperature value according to the signals of the temperature and the signals of the environmental condition, pre-operate the selection device to start the small temperature adjustment unit and/or the large temperature adjustment unit, and with the heat capacity of the coolant flowing through the enclosure as buffer, pre-insulate effect of the external heat source outside of the enclosure.