

DUAL CONTROL LOOP FOR CHARGING OF BATTERIES

ABSTRACT

A system for generator-based charging of a battery module may include the battery module, a sensor located adjacent the battery module, a generator controller comprising a processor and a non-transitory memory device storing instructions. The battery modules include one or more battery types, such as lithium ion batteries. The generator controller analyzes one or more sensor signals received from the sensor, the signals associated with battery conditions including temperature, a current, a voltage, a state of charge, a state of health and the like. The generator controller calculates a generator current value for use in charging the battery module. Next, the generator controller may generate a control signal comprising a command that may cause the generator to provide a charging current having the current value. The control signal is generated using a first control loop associated with a battery voltage and a second control loop associated with a battery current.

(Figure 1)