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(54) Title: AN IMBEDDED CHIP FOR BATTERY APPLICATIONS

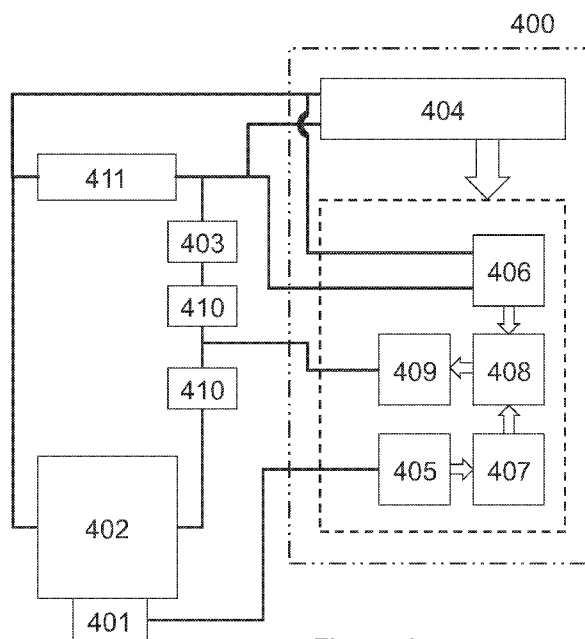


Figure 4

(57) Abstract: Provided are methods, systems and devices for thermodynamically evaluating electrochemical systems and components thereof, including electrochemical cells such as batteries. The present systems and methods are capable of monitoring selected electrochemical cell conditions, such as temperature, open circuit voltage and/or composition, and carrying out measurements of a number of cell parameters, including open circuit voltage, time and temperature, with accuracies large enough to allow for precise determination of thermodynamic state functions and materials properties relating to the composition, phase, states of charge, health and safety and electrochemical properties of electrodes and electrolytes in an electrochemical cell. Thermodynamic measurement systems of the present invention are highly versatile and provide information for predicting a wide range of performance attributes for virtually any electrochemical system having an electrode pair.



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