Fuel cell test stations provide control of flow, temperature and pressure for the anode and cathode gases. The fuel cell test station is used for fuel measurements, determining fuel cell operating conditions, and tracking electrical performance of the fuel cell. The fuel test system 850 is provided by Scribner associates, USA. The model 850 is a multi-range system for operation and measurement of PEM (Polymer electrolyte membrane) / DM (Direct methanol) fuel cells. The 850 is ideal for single-cell and short-stack fuel cell research. The model 850 is integrated with 885 fuel cell potentiostat and 890 fuel cell test loads. The system consists of internal auto humidifier drain and fill options for rapid dew-point reduction. Main specifications of the system include multiple current range electronic load choices: 5/25/50 A or

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10/50/100 A, 100 W, 20 V, suitable for up to 50 cm² PEM cells, computer control of anode and cathode mass flow rates, maximum load power of 100W, minimum load resistance of < 2 mΩ (100 mV @ 50 A at load terminals), current resolution of 1 mA for 5/25/50 A; 10 mA for 10/50/100 A with accuracy of 0.3% of full scale current of selected range, maximum whole cell voltage of 20V with 1mV resolution and ±0.3% accuracy, temperature can be varied from ambient to 99ºC, and the power source is 120 V, 50-60 Hz, 10 A².

The potentiostat 885 is designed to control the working electrode's potential in a multiple electrode electrochemical cell. The main specifications of model 885 are current ranges 2 A, 200 mA, 20 mA with resolution of 122 µA for 2 A and 1.22 µA for 20 mA, voltage range ±3 V with 125 µV resolution, scan rate varies from 1 mV/sec to 1 V/sec and the data acquisition speed is 100 points/sec. It performs fully automated experiments for voltammetry for in-situ fuel crossover, electrochemical surface area measurement, potentiostat mode for electrode and catalyst support durability test, frequency response analysis (FRA) and electrochemical impedance spectroscopy (EIS) measurements from 1mHz to 40 kHz. The model 890 is a computer-controlled instrument consisting of multi-range programmable electronic load, fuel flow and temperature controls, and data acquisition functions.

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