**Data Acquisition in Feedback Control System for HL-2M**

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**Abstract:** In order to get advanced shape, it’s necessary to control the plasma shape. The real-time feedback control of power supply is an effective way to control the plasma shape and in consequence a lot of plasma status need to be collected. Hence a real-time, high-precision data acquisition system is designed to take on that task.

The data acquisition system is consisted of three modules. The simulation system reads out the discharge data and parameters from central control system. And the data is used as the input of the feedback control algorithm to verify the validity of the system. Host computer procedure provides a simple and intuitive operation human-machine interface (HMI) to view status of the program and curves of the discharge parameters of the system. It also transmits the configuration parameters from VEC,XML and DPF files to FB control module.

The data acquisition module is designed as a framework in which the FB control algorithm is embedded. It times the whole system precisely adopting the hardware single-point to make sure the period of the whole system is 1ms. Besides it provides the signal data to FB control module using NI-PXIe 6358 by way of bridge connection with mass channels.

At last all the feedback calculation result data will be transferred to other systems such as power supply system through the reflective memory card network. And all the DAQ data and result files will be uploaded to the database automatically.

**Key Words: feedback, real-time, mass channels, data acquisition**