

REAL-TIME ACQUISITION AND REMOTE MONITORING OF STEADY STATE TOKAMAK (SST-1) DIAGNOSTICS DATA

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The architecture of Data Acquisition system(DAS)for the TOKAMAK SST-1 is essentially distributed and heterogeneous. With the long discharge duration of about 1000 seconds,that imposes a requirement of sampling data for an equally long duration from the variety of fast and slow diagnostics, the challenge is also to cater the need of a real time monitoring of signals by multiple locally networked users. With these objectives, the DAS is based on a model where the objects of the systems are integrated with the Central Control System of SST-1 using the TCP/IP communication. Communication of each object with the Central Server is facilitated with a dedicated, 100 Mbps, fully duplex, Ethernet connection. The DAS software essentially meets the demand of an active remote configuration of hardware digitizers, like PXI system and that of the initialization of acquisition within the local network.

The present work describes the TCP/IP based DAS software in labview for configuring, acquiring, and subsequently, pushing the sampled data into network. The focus is also on a client utility for real-time monitoring of SST-1 diagnostics signals by multiple clients during the discharges. We also describe the model implemented for archival and retrieval of SST-1 diagnostics data using an MDS+ server and the model tree, with its subtrees necessitated by the different SST-1 diagnostics system. In addition to this, viewing the SST-1 diagnostics signals across the network using Jscope and browsing the signals using Web is also described, along with a matlab plotting tool for the SST-1 diagnostics data.