

Data Acquisition Systems for INGA experiments at Pelletron, Mumbai – current and planned

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Electronics Division has developed and supplied a number of modules and systems for INGA experiments at Pelletron, Mumbai. These include Crate controllers, Analog to Digital Converters and FERA readout controller. The recently developed FERA system targets high throughput experiments spanning multiple CAMAC crates. New Embedded Crate Controller (ECC) has been developed to replace existing CC2000 crate controllers due to obsolescence of components and to achieve higher performance through hardware list sequencing, optimized embedded software and data transfer over Ethernet.

Development of a new family of analog data acquisition modules has been initiated. These include octal FERA ADC and TDC modules. These will further enhance the capability of the FERA based system. A modular design approach is followed to facilitate ease of maintenance. Development of Octal FERA QDC is also planned in the second phase.

Keeping up with advances in technology, it is planned to develop technique of processing nuclear detector signal in digital domain and send only the processed digital information to a central system. Application specific digital signal processing algorithms will be implemented to extract information of interest from the signal. This type of implementation will be very useful in large experiments with electronics mounted very close to the detectors.