

INSTRUMENTATION AND CONTROL STANDARDIZATION IN THE ITER PROJECT

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The ITER Instrumentation and Control (I&C) System is the term encompassing all hardware and software required to operate ITER. It has two levels of hierarchy; the Central I&C Systems and the Plant Systems I&C.

The Plant Systems I&C consists of thousands of computers processing hundreds of thousands of signals. The Plant Systems I&C, being the primary tool for operating the ITER machine, shall integrate, control and coordinate all these computers and signals and allow a limited number of staff to operate the ITER machine from a central location with minimum human intervention during experimental pulses and 24/7 continuous operation.

The procurement model, together with the current estimate of 161 Plant Systems I&C, poses a major challenge for the realization and integration of the ITER I&C Systems.

Standardization of Plant Systems I&C is of primary importance and has been one of the highest priority tasks of CODAC by issuing the Plant Control Design Handbook (PCDH) to ensure ITER I&C Systems will contribute and be instrumental in making ITER project a success.

In this paper we will elaborate from a technical perspective on what CODAC team defined in the current version of PCDH (v5) for this standardization process:

- We will focus on rules and guidelines for PS I&C architecture, integration scenarios for PS I&Cs, I&C naming convention, hardware standards for I&C components, I&C signal processing and methodology for plant system I&C design.
- In addition, it will present first outcomes of case studies to illustrate CODAC team recommendations, and roadmap for next version of PCDH v6 to be issued in 2011.