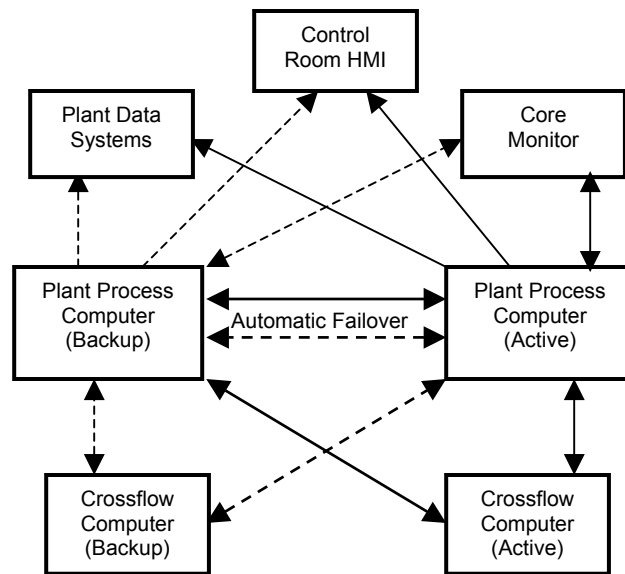


Westinghouse CROSSFLOW integration with Plant Computer Systems

Utilities worldwide are considering the Westinghouse CROSSFLOW system for reducing core thermal power uncertainty. The CROSSFLOW ultrasonic flow measurement system, developed by Westinghouse Electric Company, LLC and Advanced Measurement & Analysis Group, Inc., enables Nuclear Power generators to more accurately measure feedwater flow and reduce the uncertainty associated with this measurement. A reduction in feedwater flow uncertainty, applied as a Correction Factor (Cf) to the Plant Process Computer (PPC) feedwater flow readings, translates directly to a reduction in the uncertainty of the calculated core thermal power, allowing the plant to operate at a higher power rating.

Providing an interface between the CROSSFLOW system and the PPC, with the resultant interface to other plant data and HMI systems, allows automatic correction of PPC feedwater flow parameters and offers significant benefits over a stand-alone system.



CROSSFLOW - Plant Computer System Interfaces

Benefits

These benefits include:

- Real-time correction factor (Cf) adjustment to feedwater flows
- Labor savings and error reduction associated with manual Cf application to PPC flow values
- Presentation of CROSSFLOW and associated PPC data via proven main control room HMI
- Added functionality of CROSSFLOW system information available to the PPC and other plant data and HMI systems
- Reduction of equipment and HMI systems in the Control Room
- Use of existing operator interfaces

Integration Services

Integration of multiple plant computer systems requires a well thought out project plan, and an experienced system integration team that will assure:

- An effective working relationship with the CROSSFLOW system vendor
- An in depth knowledge of CROSSFLOW system functions, platform characteristics and communication requirements
- A thorough understanding of operator and user interface requirements
- A software development team that understands how to use the PPC to process, present and analyze CROSSFLOW system information
- All required information is identified and available at project start
- A schedule consistent with scope of interfacing systems
- A complete understanding of overall project requirements

The **C3-ilex** team meets these key requirements. **C3-ilex** is an experienced integrator of the Westinghouse/AMAG CROSSFLOW system and has provided the services required to successfully interface your CROSSFLOW system with other plant computer systems.

The core of this interface involves development of a "CROSSFLOW Server" software program that runs on the PPC and performs the following functions:

- Provide "server" function to CROSSFLOW system "client" requests
- Set-up communications with CROSSFLOW and other plant computer systems
- Process the CROSSFLOW system's requests for data
 - Acquire data points & statuses from PPC database
 - Send values & status of points read to CROSSFLOW
- Process the CROSSFLOW system's output data
 - Store data values and status into PPC database
 - For unsuccessful updates process error codes to CROSSFLOW
 - Issue alarms if appropriate, including CROSSFLOW detection of sudden feedwater flow change
- Monitor the communications for exceptions and/or timeout and process alarms
- Monitor point status of correction factor and alarm if bad

C3-ilex can provide complete or partial integration services including project planning, requirements definition, software development, site acceptance testing and project management. Services can be quoted on a fixed price, time & material or combination basis, depending on project definition, scope and client needs.

Deliverables

Typical deliverables associated with an integration service offering include: Project Plan, Software Design Specifications, Source Code for a Crossflow Server Program, Customized HMI Displays, Software Build and Install Procedures, and Site Acceptance Test Plans.

Contact

For additional details, please contact Dave Brager at (910) 251-1330 or call **C3-ilex** headquarters at (510) 659 – 8300 x 101