

TELEPERM® XS

Inadequate Core Cooling Monitoring System Upgrades

In order to ensure the long-term operability of the U.S. nuclear fleet, utilities are addressing obsolescence and reliability issues in many critical plant systems, including the existing Instrumentation and Control (I&C) Systems.

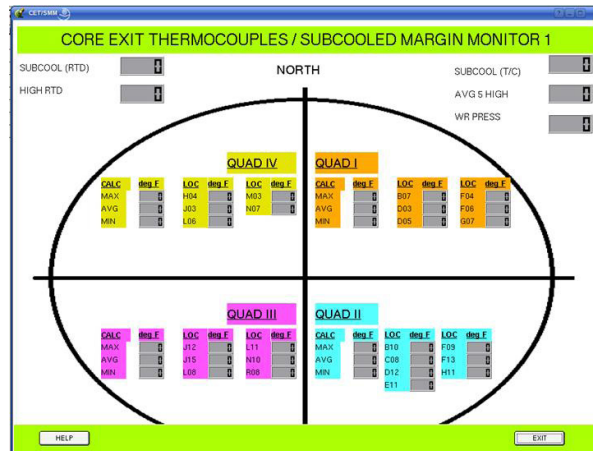
AREVA now offers a replacement Inadequate Core Cooling Monitoring System (ICCMS) and Reactor Vessel Level Instrumentation System (RVLIS) using our proven TELEPERM® XS digital platform. Our extensive global capabilities are not just those of an I&C system supplier, but include all competencies required to address obsolescence, procurement, engineering, licensing support, integration and installation /commissioning services.

Technical Solution

Our solution consists of two redundant Trains, which acquire analog signals from plant transducers and provide digital outputs to annunciators, analog outputs to indications, and computer point data through a gateway to the plant Operator Aid Computer.

The system can perform any or all of the following functions:

1. Reactor Vessel Level Instrumentation System (RVLIS)
 - RVLIS is used by the Control Room Operator to monitor the level in the reactor vessel.
2. Core Exit Temperature Monitor (CETM)
 - CETM is used by the Control Room Operator to monitor different values (direct and calculated) of the core exit thermocouples in the reactor vessel during non-operational modes or events.
3. Sub-cooled Margin Monitor (SMM)
 - SMM is used by the Control Room Operator to monitor the following values:
 - The saturation temperature of the Reactor Coolant System (RCS).
 - The temperature margin to saturation based on core exit thermocouples.
 - The temperature margin to saturation based on Resistance Temperature Detectors (RTDs).



Features and Benefits

AREVA's Inadequate Core Cooling Monitor System (ICCMS) / Reactor Vessel Level Indicating System (RVLIS) is based on the TELEPERM® XS platform.

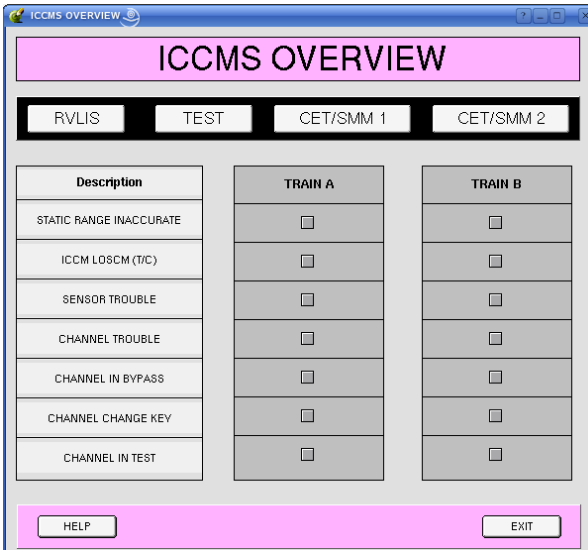
TELEPERM® XS is a proven, versatile and robust Digital I&C System, which fulfills the demands of nuclear power plant control systems utilizing:

- Human Machine Interfaces (HMIs) used to ease maintenance, troubleshooting, and parameter updates (tuning)
- Components designed with backward compatibility mitigating obsolescence issues
- Early detection of faults due to extensive self-monitoring
- Common interfacing solutions (i.e., MODBUS, OPC)
- High software and manufacturing quality
- Isolation of redundant subsystems through use of fiber-optic cables
- Prevention of fault propagation by means of intelligent signal status processing
- Versatility in addressing cyber security
- Connects to existing differential pressure transmitters, CETs and other field devices

Project Experience

As the world leader in digital Instrumentation and Control Systems for nuclear applications, AREVA's focus continues to be safety and quality, leading to the highest levels of performance. Our TELEPERM® XS platform is installed or on order at 81 units at 43 separate sites in 16 countries, including 19 ICCMS.

AREVA is the only supplier that has supported the successful licensing, engineering, procurement, installation and commissioning of a full-scope digital I&C Protection System in the United States. In the United States, there are three units installed and reliably operating.



Meeting your Objectives

AREVA can tailor a solution to fit your site's needs. The system has the flexibility to accommodate site specific designs. The TELEPERM® XS platform has been designed exclusively for use in nuclear power plants, and for nuclear safety related applications in particular; there is no limit to the number of inputs and outputs for the system.

Our ability to customize a solution for you combined with our proven track record translates into licensing, procurement, installation and operation certainty for your plant.

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