

# I&C – Digital Control Upgrades, Verification & Validation (V&V)

TELEPERM® XS (TXS) is AREVA's system platform for safety-related Instrumentation & Controls (I&C) in nuclear applications. It comprises all the necessary hardware and software components, including the software tools required for engineering, testing and commissioning, operation and troubleshooting.

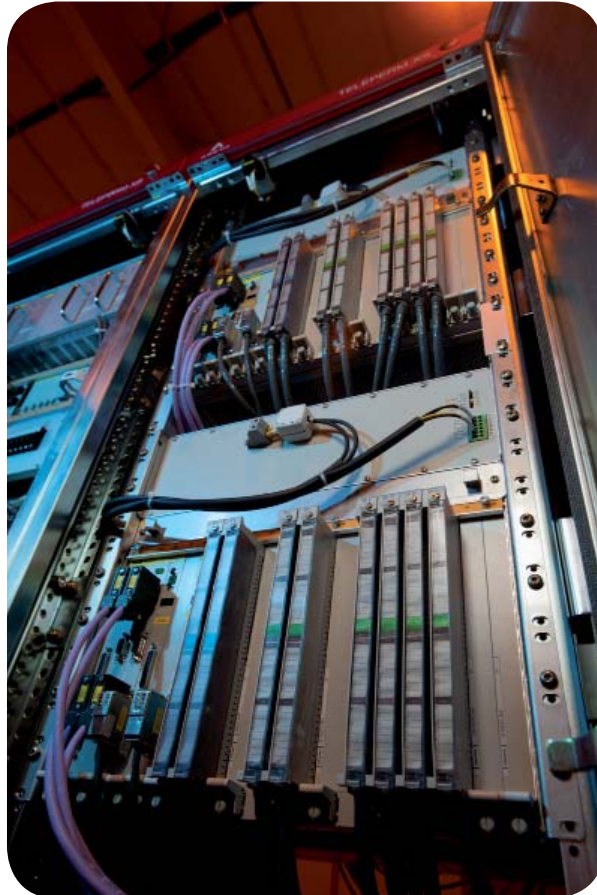
TXS is suitable for new plants as well as for upgrades and modernization of existing plants. AREVA has more safety-related digital control systems installed or on order at nuclear plants globally than any other supplier. TXS has been commissioned or is being installed at 81 units in 16 countries on 13 different reactor types. AREVA has over 49,000 TXS components installed worldwide, with over 4 billion hours of operation.

In the United States, AREVA has completed the first major digital upgrade of a safety-related Reactor Protection System / Engineered Safeguards Protection System (RPS/ESPS). The complete replacement of the previous analog system was performed at three units.

The project team received the 2011 Platt's Global Energy Award for Engineering Project of the Year, and the utility was also awarded the 2012 Nuclear Energy Institute's B. Ralph Sylvia "Best of the Best" Top Industry Practice (TIP) Award. In addition, TXS had also been installed at one of the utility's hydro stations.

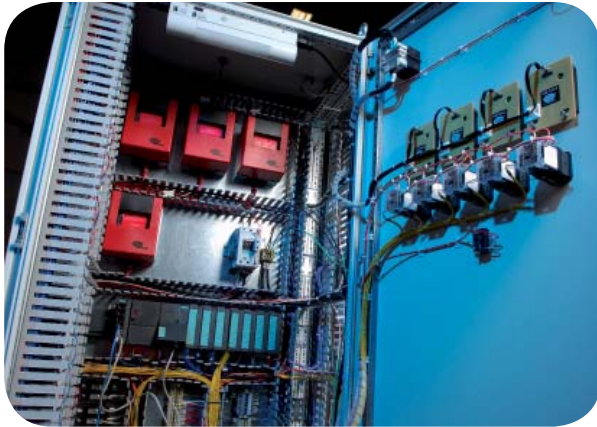
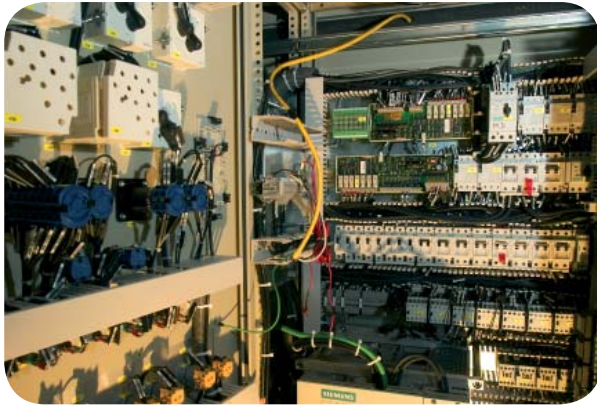
In addition to Digital I&C Hardware and Software Design, AREVA's I&C Division offers Verification and Validation (V&V) services. In 2012, AREVA received final approval from the NRC for its Simulation Validation Test Tool (SIVAT), in support of Validation Testing of TXS projects. This software simulation tool allows I&C software functionality to be tested across multiple phases of a project's software life cycle. With the Final Safety Evaluation, SIVAT can be used to conduct all Application Software Integration Testing and also support System and Acceptance Testing activities. This minimizes the overall testing effort and reduces a significant amount of project risk.

AREVA also has experience with the design and V&V of projects that involve third-party safety-related I&C platforms, and has managed or supported projects involving non-safety systems as well.



## Features and Benefits:

- Suitable for new plants as well as for upgrades and modernization of existing plants
- Comprises all the necessary hardware and software components
- Experienced with design and V&V projects



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