Contribution ID: **211** Type: **Poster**

# #5-211 Digital Excore Channel based on TXS Platform –An Overview

*Wednesday, June 11, 2025 4:45 PM (5 minutes)*

In the past years, a standard channel solution for the Excore Neutron Flux Instrumentation System has been developed by Framatome. The Framatome Excore standard channels are a highly integrated solution which comprises the analog and digital processing part. One advantage of the automated solution is the use of the Teleperm XS (TXS) Service Unit for calibration and testing with a proven service software (graphical user interface, masks and scripts) which leads to significant time savings for the operator during regular maintenance by ensuring the highest nuclear safety standards at the same time. This standard solution has been successfully integrated into several nuclear power plants, demonstrating its effectiveness and reliability in enhancing operational efficiency and safety.

On the other hand, Framatome has made significant progress in developing the new TXS Compact platform. TXS Compact is an automation system based on FPGA technology that can be used with different modules from the TXS portfolio (signal conditioning, TXS cabinet, TXS power supply sub-rack, etc.) to implement safety I&C systems able to fulfill requirements of safety related I&C systems in nuclear power plants.

TXS Compact offers a wide range of function block types that can be easily combined to implement most of functional requirement and safety functions. Safety I&C solutions on TXS Compact contain no CPU and no software but is entirely operated on configurable hardware logics in the FPGA and memory cells. TXS Compact enables the development of class 1 safety I&C systems according to IEC standards (IEC 61513, IEC 62566, IEC 60987; etc.) and to the system needs and functional requirements.

A proof-of-concept performed by Framatome in 2023 integrated the synergistic potential of both technologies, exploiting the modular design of the Excore TXS modules alongside the TXS compact technology.

The primary goal of this poster is to provide a comprehensive overview of Framatome digital Excore system based on TXS platform. Additionally, this poster will offer valuable insights into future developments, highlighting the importance of maintaining high safety standards while enhancing reliability and efficiency across all types of nuclear reactors. Ultimately, our objective is to inform and inspire collaborative efforts for the future.

**Primary author:** KONRAD, Patrick (Framatome)

**Presenter:** KONRAD, Patrick (Framatome)

**Session Classification:** #05 - Nuclear Power Reactors and Nuclear Fuel Cycle

**Track Classification:** 05 Nuclear Power Reactors and Nuclear Fuel Cycle