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EPICS control system for Beam Operation at Saraf Linac Accelerator

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The CEA Saclay Irfu is responsible for most of the EPICS control system for the Saraf linac accelerator located at Soreq in Israel. This scope includes the control and the tuning of the beam. The accelerator is commissioned by disciplines (vacuum, RF, cryogenics···) and sections. For this purpose, we have developed a high-level application that can activate a set of subsystems to prepare the accelerator for the desired configuration. This application, called BOM (Beam Operation Modes), transmits and controls the operator requests of beam mode and destination to a set of subsystems. The BDM (Beam Destination Master), part of the MPS (Machine Protection System), is responsible for ensuring, among other things, that interceptive elements are not in the beam path, that power converters are in the expected state and that the vacuum conditions are correct. The SBCT (Section Beam Current Transmission), also an element of the MPS, monitors the current transmission along the accelerator using ACCTs and must be configured for the desired destinations. The Cavity Phasing system verifies that the cavities are properly conditioned. The TMG (Timing), another element of the MPS, relies on fiber optics and its network must be monitored and operational. The MPW (Max Pulse Width) application limits the beam power by restricting the pulse width, according to the inserted devices. This paper presents the different components and their functionalities.

Footnotes

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