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Development of low energy SuperConducting Linac (SCL3) control system for RAON

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The Rare isotope Accelerator complex for ON-line experiments (RAON) is under construction in Daejeon, Republic of Korea. RAON is a device that accelerates various ions generated from ion generators such as Electron Cyclotron Resonance(ECR) and Isotope Separation On-Line(ISOL) system with a superconducting linear accelerator. The low energy superconducting linac(SCL3) is composed of 22 QWR(Quarter wave resonator) cryomodules, 34 HWR (Half wave resonator) cryomodules and 56 warm sections. The cryogenic distribution system for SCL3 has 45 valve boxes dedicated for the cryomodules. The main purpose of the SCL3 control system is integrated control and monitor of the cryomodules, the vacuum system of the warm sections and the cryogenic distribution system. SCL3 was successfully cooled down to 4.5 K, and it is being commissioned since September 2022. This paper describes in detail the SCL3 control system developed based on Experimental Physics and Industrial Control System(EPICS).

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