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C1Or2A-04: How the Sample Environment Communication Protocol may benefit the automation of commercial cryogenic equipment

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The International Society for Sample Environment (sampleenvironment.org) has developed a device-communication protocol for shared pools of portable and interchangeable laboratory equipment, including temperature, pressure, and magnetic field systems. The Sample Environment Communication Protocol (SECoP) uses self-describing metadata to enable plug-and-play connection of a wide range of devices to the user facility data acquisition and control computers. Equipment developers may incorporate SECoP servers into their systems, such that multiple low-level controllers are locally integrated into a single node, providing the end user with a simple, standardized interface. Presently, the SECoP effort is based within the neutron and X-ray scattering communities. However, the potential benefits to the larger cryogenic engineering community should be seriously considered. The present talk explores the use of SECoP for a portable helium management system, which includes customizable modules for boil-off recovery, pressurized gas storage, purification, liquefaction, and automated liquid transfer. The goal is to provide reliable automation and easy integration of the helium management system into a customer's facility.

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