

SILECs Home

Software Infrastructure for Low-level Equipment Controllers

Overview

The Low-level Equipment Controller (LEC) like a Programmable Logic Controller (PLC) is an essential component of the control systems of CERN Accelerators. With a high level of functionality, performance and connectivity, it is sometimes equated to a Front-End computer (FEC). Nevertheless, the LEC remains a specialized industrial (or custom) component, with dedicated infrastructure and communication tools (field-buses, protocol, etc.) and with proprietary environment for configuration and developments. The SILECS software package that was developed within the CERN Accelerator Controls group contributes to an efficient solution for interconnecting the LECs and the FECs of the control system via Ethernet. It consists of a simple JAVA configuration tool (Eclipse-RCP based), a LEC source code generator and a high-level C++ client interface. The SILECS infrastructure benefits from long experience of its well-known IEPLC father which regularly improved the service features and reliability. In particular, it provides supports communication for Siemens, Schneider, Beckhoff PLCs, National Instruments equipment (PXI, CompactRIO, ...) and more specific hardware like DIGI Rabbit microcontrollers.