The AC/DC converter supplies direct current of up to 68 kA continuously to ITER superconducting coil for a few weeks or months. It requires a reliable controller because the energy up to gigajoule units is stored in the superconducting coil.

In this paper, the design methods and characteristics of ITER local control system are explained to meet the requirements and for the high reliability.

**2. RELIABLE LOCAL CONTROLLER FOR KOREA AC/DC CONVERTER**

The local controller for AC/DC converter, which supplies power to ITER superconducting coil, consists of Conventional system, Interlock system, Safety system, and Hardwired system.

- **Conventional system** provides control, local data acquisition, monitoring, alarm handling, logging, event handling and data communication functions.
- **Interlock system** provides local device protection functions for AC/DC converter.
- **Safety system** provides occupational safety functions for AC/DC converter.

In order to provide reliable control converter, we propose to apply 3 features to the local controller as follows:

1. Multi transient data recorder and dual channel communication
2. F-LIC for local investment protection at the top level
3. Configuration using reliability certified controllers