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B-field monitoring of the Alice magnetic fields,

In view of the forthcoming magnetic field measurements (July-September 2005) of the Alice magnet system, a prototype for monitoring the magnetic field was build and tested in the laboratory and will be validated during the mapping of the magnetic fields. The total magnetic field volume to be measured comprises the L3 solenoid and
Muon arm dipole magnets. Hall and NMR probes will be installed in both magnets and connected to a central monitoring system. The present paper describes the prototype front-end configuration together with its PVSS control software and first results.

Summary

A series of measurements are planned in the near future, with the purpose of mapping
the magnetic fields of the ALICE magnets. The magnetic field measurement volume comprises the volume of the L3 solenoid magnet together with the volume of the muon arm dipole magnet. Measurements will be performed for two settings of the magnetic field, i.e. 0.2 and 0.5 Tesla, in the L3 solenoid, a fixed setting in the dipole magnet and both polarities for the two magnets. Hall and NMR probes will be use for monitoring. The present paper is describing the prototype build for these tests.
The "Hall probes"–56.5*56.5 cm2 sensor cards produced by NIKEFH for the ATLAS experiment- are connected via flat cables to a MTD-DCS CAN module designed to support read-out of multiple B field sensors. The MDT - DCS is a CANOpen driven module and contains an ELMB board. The MTD-DCS module is connected via CANbus cable to a KVASER PCI CAN card installed in a PC. For the present prototype, PVSS II v3.1 control software was written and implemented. The control application communicates with the MTD-DCS hardware via the ELMB OPC server (an ATLAS software product, based on the CANOpen protocol 2.0). The paper will describe the hardware and software setup in detail together with results and measurements.

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