

A VME-based LabView System for the Magnetic Measurements of the LHC Prototype Dipoles,

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Switzerland - A magnetic measurement system based on a set of rotating harmonic coils has been integrated together with the power supply control, the coil positioning inside the magnet, the coil rotation control and the associated data acquisition. The system is based on a VME crate hosting a PC in a VME module with its network connection, local hard disk and serial interfaces. The PC communicates with its peripheral devices (the controller embedded in the power converter, the coil positioning PLC and the coil rotation hardware) via RS-232C lines and acquires data using VME modules: in-house designed voltage integrators for the magnetic measurement and an ADC for real-time measurements. The software is a LabView application: it handles and synchronizes the peripheral devices of the measurement system and the real-time tasks related to the data acquisition; it constitutes a man-machine interface for the operator and also directly stores field maps onto a file server. The system is operational on the test benches and has proved reliable, user-friendly and performed as expected.