High Voltage Module Control Logic

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Abstract

The control logic of a 12-channel high voltage module is described. It is implemented in two Xilinx XC9572 CPLD's (master and slave). The master is connected to a main controller via a bi-directional serial bus and to the slave via a on-board serial connection. The master controls the first group of six HV channels. The slave controls the second group of six channels. The list of instructions issued by the main controller to the master is: select high voltage (HV) channel, enable/disable selected (or all) channel(s), write value to selected (or all) channel(s) (serial DAC), read status of voltage and current trip registers, reset voltage and current trip registers, select value to be measured by an on-board serial ADC, read ADC, read status of interlock loop. This HV module is the basic unit of the HV Power Supply System for the muon chambers of the ME1/1 endcap station in CMS.