

Upgrade of a Control System for a Scanditronix MC 17 Cyclotron

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In order to extend the life time of the relatively old Scanditronix MC17 cyclotron (built 1980) an upgrade to the control system was commissioned. The existing system is a PM 550 Texas Instruments. It consist of a Central Control Unit (CCU, 4 KB), a programmer, 6 MT input(170)/output(120) modules (fig 1), 7MT analog input(16)/output(12), a 7MT parallel input(4)/output(4) module and a control consol interface (fig 3). The programming is ordinary ladder logic. The system works well but the lack of spare CCU:s forced an upgrade to the system.

The choice was the CTI 2500 system due the existing special interface card 505-5190 B. This card makes it possible to keep, and avoid rewiring of, all the 6 MT modules. CTI-2558/2562 N analog input/output modules replaced the old ones. The ADC:s were connected in parallel to the old ones. The old DAC:s and the new DAC:s were connected to a toggle switch. This simple rewiring was done in less than five hour. The 7MT parallel input/output were only used for display function and could be omitted in the new system. The installation makes it possible to change between the systems within less than 5 minutes. The CTI system runs under CTI P-SM505-CW N software (505 Workshop Single License). A new interface was written in Visual Basic instead of using a commercial SCADA program. The interface was used on a PC lap top. The upgrade was performed in collaboration with a Danish company Green Matic. Green Matic made the ladder programming. The total cost of the upgrade was less than 20 000 Euros. Testing and debugging of the new system took one day.



Fig 1: The 6MT modules



Fig 2: The new CTI system (In order from left: Power Supply, CPU, Interface card, 4 Analog 8 Channels IN/OUT cards)



Fig 3: The PM550 control consol



Fig 4: New interface written in visual basic