

RADIATION MONITORING SYSTEM AT KEK

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The new radiation monitoring system (RMS) was built from the requirement of continuously growing accelerator utilities at KEK. The RMS consists of radiation detection instrumentation (RDI), a computer system capable of data manipulation (Center), and five interface subsystems to monitor the status of the RDI (Station).

The RDI consists area monitors and activity monitors in water, air and air borne dusts. The monitor is basically stand-alone system. Each monitor is fully equipped with the function of detection of radiation, local display of radiation level, local alarming and transmitting local information to the station. The monitor is divided into two parts. One is a radiation detector with a pre-amplifier and the other is mainly functional electronics mentioned above including a linear amplifier and a discriminator as shown in Fig. 1. The latter is completely common to all monitors not depending on the kind of detector. We designed the monitor to be easily maintainable. The next step is to make it slightly intelligent to plug in an ADC unit or a micro-processor in order to control sampling process in the case of activity monitors.

The Station consists of a micro-computer with a CAMAC system to interface the monitors and a color TV monitor to display the status of each monitor. The station is capable of collecting data from at least 32 monitors, storing the data of the past 24 hours in its memory, and displaying the status of each monitor around it. Furthermore, it evaluates the data from monitors and warns to the Center and to the operator of accelerator in the case of the excess radiation level.

The Center is a mini-computer system as shown in Fig. 2 with the station, and is operated in continuous interactive real time mode. The operator can easily monitor the status of the five Stations scattered far away from the Center. The primary function of the Center are the book-keeping of data from the five stations and the evaluation of radiation level on-site of KEK.

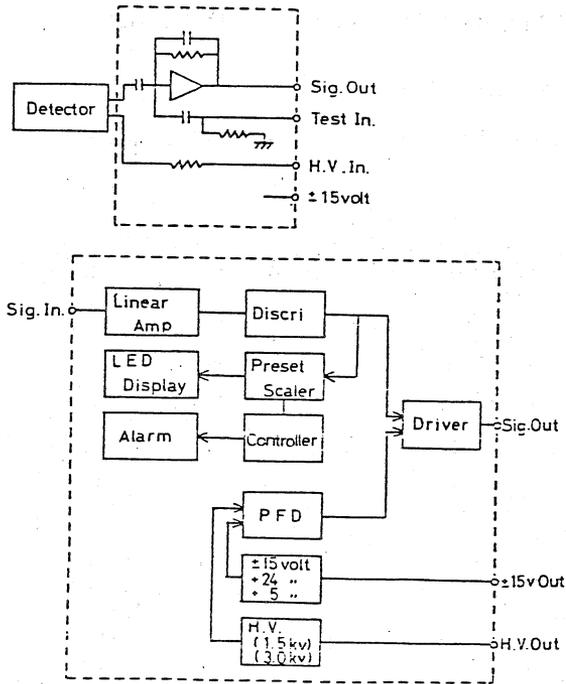
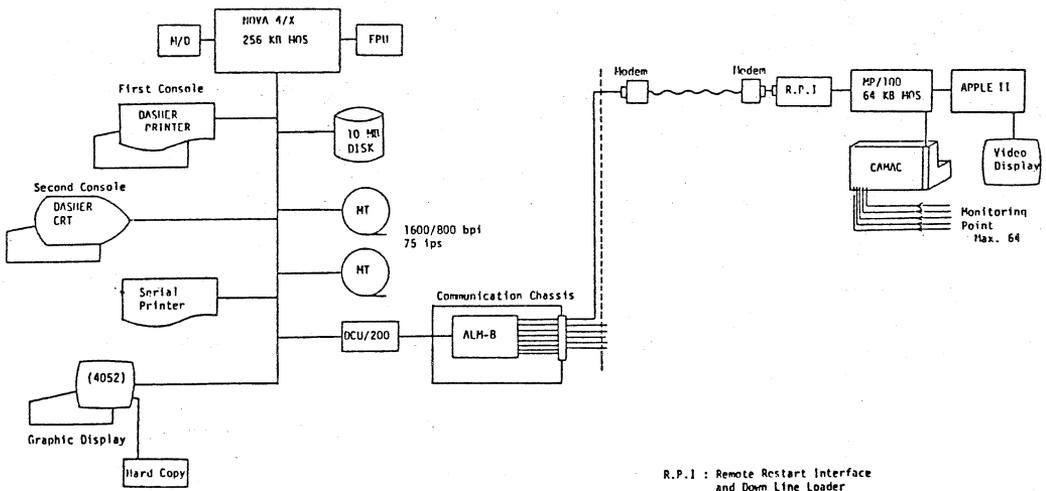


Fig. 1



R.P.I. : Remote Restart Interface and Down Line Loader

Radiation Network System
Fig. 2.