MPWG

Energy Info. & PC Faults

John Pett SL/PO

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Nice

Standard DICO Functions

- All Dico equipped PCs will have the following functionality :
- Provide current regulation according to the pre-loaded current v time curves.
- Monitor the internal and external faults with a time resolution of 10msecs.
- measure the 2 DCCTs every 1msec and every 10msec publish the 2 currents and the ‘reference’ to the VME gateway, along with state data. This is not = to energy.
- Indicate any int./ext. Faults to the ‘general’ interlock system (delay TBD).

Special modifications for Beam Dump PCs

- By software modification, it is possible to inter-compare the ‘reference’ with the 2 measured currents every msec and if any difference > x% is detected, then a signal could be sent to the appropriate destination
- The minimum time to process and send out such a signal is estimated to be about 5 msecs.
- Equally, copies of the analogue current signals (from the 2 DCCTs) could be made available. What accuracy is needed ?

Reliability Issues (1)

- The DICO system has many failure mechanisms. Software being only one !!
- What checks the downloaded ‘reference’ values ?
- No watchdog (ie. automatic output of fault signal) is currently foreseen for current errors. Such a process cannot be fast !
- For energy, the DCCT signals (in analogue) from one Main Bend area maybe are adequate for energy, but for additional security another independent DCCT is needed. Eight sectors ??

Reliability Issues (2)

- For the MSD PCs additional and external devices seem necessary to increase the reliability for firing the dump.
- Hence the DICO system should not be relied on as our designs stand at present {estimated MTBF ~ 40khrs} and nothing other than a triple redundant system could be expected to be adequate.
- Such additional systems should be complementary to the information provided by the PC systems, ie. DICO fault signal and DCCT signals from Mains and MSDs