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Electronics
Setup Using Charissa Modules

Author: W.D.M. Rae

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Take discriminator output from Charissa amp into a SH8000, shapes the signal to 400ns (the resolving time). These fast NIM should also go to the TDC's. The most convenient point is to take the second output from the shaper to do this (only leading edge important). The necessary delays are provided by DL8000 units (either 170ns or 380ns) - make sure the delays are long enough so that when the TDC is strobed the signals are range.

The shaped output (400ns fast NIM) are used in overlap mode for the first level coincidence - i.e. telescope coincidence. This is done using a Lecroy 465. This box determines which signals must be present for a single telescope event.

It is useful at this stage to veto the pulser signals so that a pulser strobe can be generated cleanly later. The linear outputs of the Lecroy 465 should also be used!!

These outputs are then fed to prescale units (RD2000) and to the second level of coincidence (Lecroy 380A). The second level determines whether a pair (or more) of telescopes have fired.

Finally the strobe is formed as either a prescaled 'singles' telescope or a second level coincidence or a pulser or null event using an LF4000.

Using the Discriminator

Look at unipolar or bipolar trace on oscilloscope triggered by pileup on Charissa amps. With a high **random** rate adjust threshold so that the analogue pulses on the oscilloscope are pileup events only. A lower threshold setting will yield pilseup signals triggered by noise which will show up as well shaped analogue pulses on the oscilloscope. The threshold level is then probably too low. (It is simply a leading edge threshold discriminator).

Other Modules

Gate and delay Functions are provided by the GG8000 units and Lecroy 222 or equivalently CAEN2255B. The Lecroy and CAEN units are more sophisticated but lower density. High multiplicity coincidence ($4 < n < 32$) is provided for by the Lecroy 380A.