SURFACE CONCEPT

Constant fraction discriminator module:

The NIM - CFD module was exclusively developed to operate on high repetition rates an short pulses (below 10 ns FWHM).
It must be ordered with a factory build in fixed delay in order to offer maximum performance.
The input range is optimized for typical detection tasks from pulse amplifiers of secondary electron multiplier systems (MCPs, Channeltrons, PMTs)

 NIM - CFD device features:

 - *available as 2 channel, 4 channel or 6 channel version*
 - *threshold and fraction (zero) adjustable for each channel*
 - *fixed internal delays (user specific 1.5 ns, 3 ns, 6 ns according to typ. pulse FWHM)*
 - *50 Ohm inputs, amplitude range between - 50 mV and – 2 V*
   (for positive pulses on request)
 - *NIM outputs, pulse width fixed (user specific 2.5 ns, 4 ns, 7 ns)*
 - *all inputs high voltage protected by ESD up to 8 kV (HBM)*
 - *output jitter vs. input at fixed amplitude: < 14 ps*
 - *typ. time walk < 50 ps*
 - *max. operational frequency 200 MHz*
 - *propagation delay typ. 7 ns*
 - *double pulse resolution down to 5 ns @ 2.5 ns output width and 1.5 ns delay*
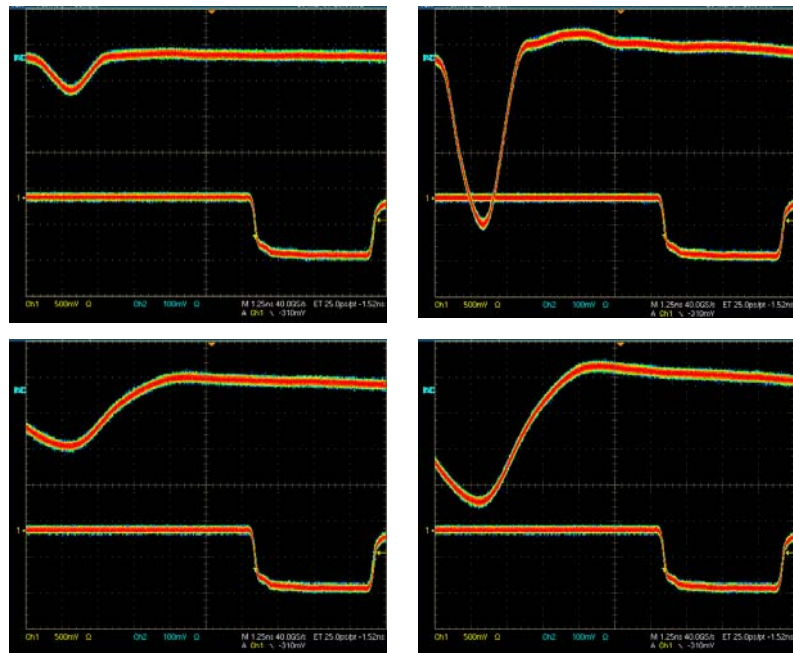

Fig. 1: CFD operation for various pulse amplitudes and shapes

t(scale) = 1.25 ns / div

U(Input) = 100 mV / div

U(Output) = 500 mV / div
(NIM @ 50 Ohms)