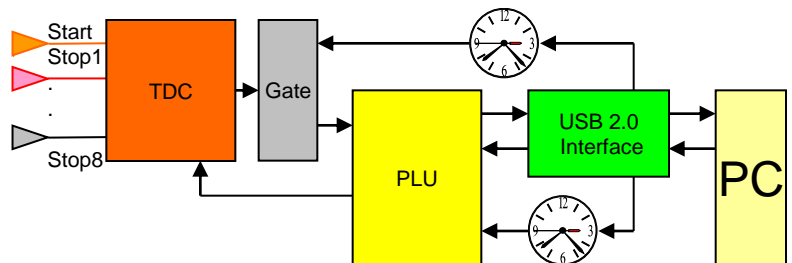


## Time-to-Digital-Converter (TDC) with USB 2.0 interface:

The USB2.0-TDC combines the excellent performance of the TDC-F1 (ACAM GmbH) with a high speed USB interface. A programmable logic unit (PLU) enables comfortable setups and a variable data stream handling from the TDC via USB 2.0.

### USB and logic device features:

- USB 2.0 data streaming without losses
- quartz stabilized, free programmable, global time gate (100 ns – 24 h)
- TDC data streaming as measured or including data pre-conditioning
- free programmable primary input gate of the PLU (10 ns – 50  $\mu$ s)
- free programmable channel pairing and pair arithmetic with result range limiting



### TDC device features:

- low voltage TTL inputs, common start input usable as reset of the internal clock
- resolution adjust mode: quartz-accurate, insensitive to temperature variations, no calibration necessary
- 8 channels at normal resolution of 120 ps, measurement range 5 ns – 7.8  $\mu$ s in start-stop operation
- 4 channels at high resolution of 60 ps, measurement range 5 ns – 3.9  $\mu$ s (start-stop)
- all channels provide precisely an equal resolution
- no minimum time limit for hits at different channels
- multi-hit capability at 20 ns minimum pulse pair distance per channel
- max. data acquisition rate of 2.5 million results per second (randomly distributed for all used stop channels in total)

### optional features:

- 15 MHz data acquisition rate using the F1 trigger mode (under development)
- 9 independent LVTTTL counters,  $f_{max} = 40$  MHz, 28 bits dynamics each, common programmable time gate (10 ns – 3 h)