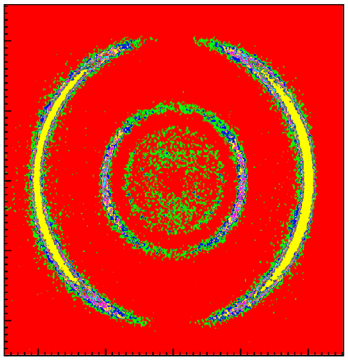
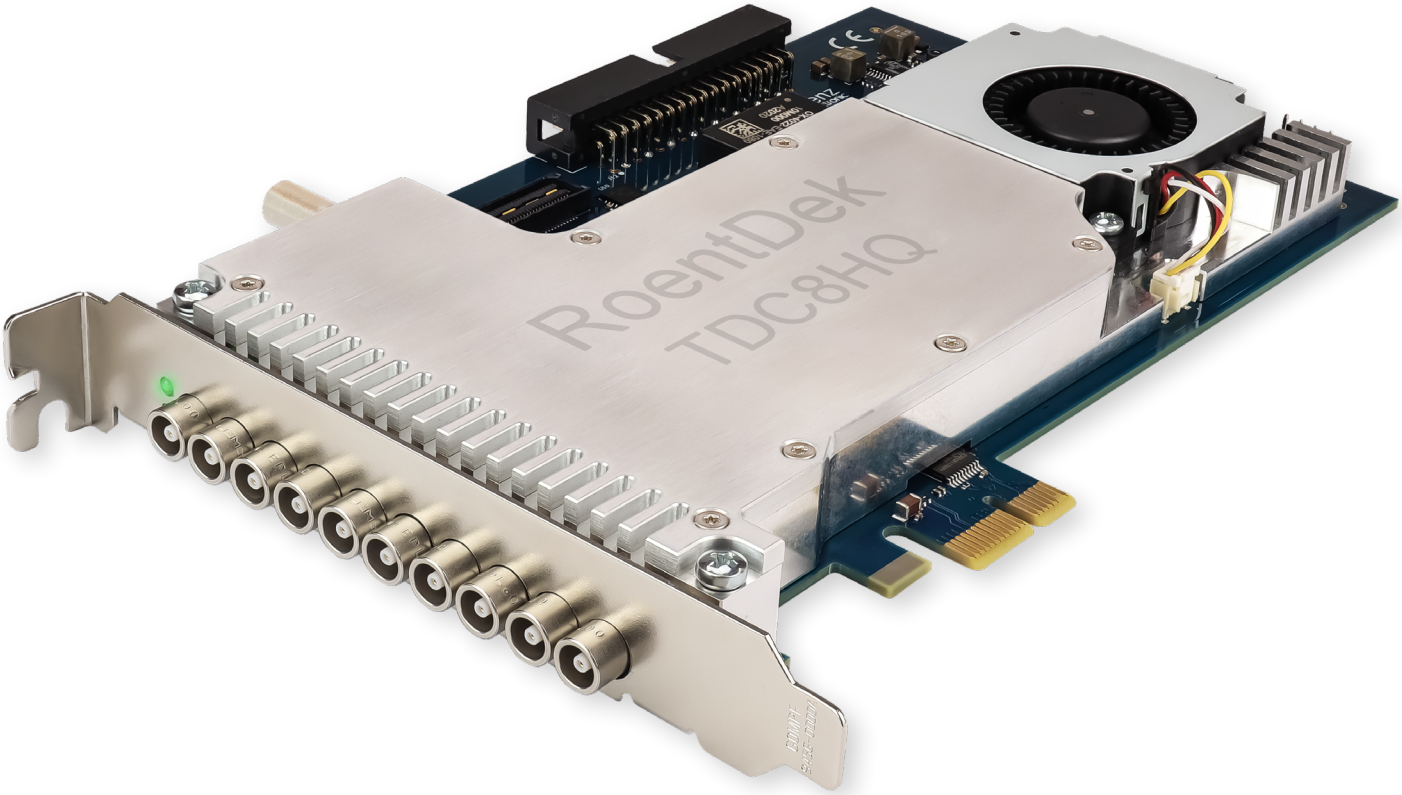


RoentDek Handels GmbH

Supersonic Gas Jets
Detection Techniques
Data Acquisition Systems
Multifragment Imaging Systems

TDC8HQ

Product Brief



Introduction

Our most versatile TDC combines the precision of the TDC4HM with the channel count and flexibility of the TDC8HP.

Don't let yourself be restricted to common-start configurations! With the TDC8HQ, your can set up your system any way you like. The device will provide you with an infinite stream of timestamps - one for each input pulse. You may filter them in software as needed - or you let the hardware itself group the measurements into time windows around a trigger pulse in a convenient data structure.

Like the TDC4HM, the TDC8HQ provides very high precision measurements with almost no cycle-to-cycle jitter. You can expect an RMS error very close to the quantization error. The linearity is practically perfect.

The PCIe bus master accesses into a buffer on the host PC that is fully controlled by the device, ensuring low CPU load at high throughput.

Our timing generator allows you to create digital output pulse patterns on all connectors to control the timing of your experiment.

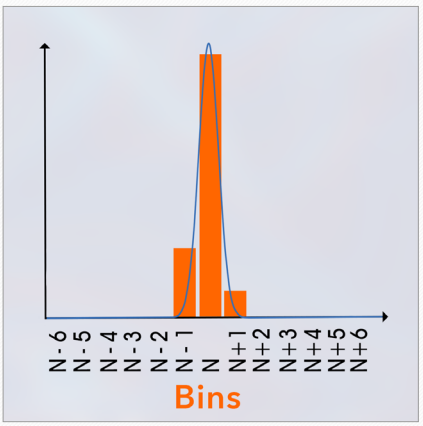
The newly added 18-bit ADC can monitor an analog voltage in your system in sync with the data acquisition or controlled by external pulses.

Technical Data

Optimized for	flexibility + performance
TDC channels @ bin size	8 @13ps
Additional inputs	event triggered ADC
Connectors	10x LEMO 00
Bin size	13 ps
Double pulse resolution	5 ns
Multihit	unlimited
Dead time between groups	none
Readout rate	30 MHits/s total; 11,6 MHits/s per channel
Range	unlimited
Common start/stop	yes / yes
Number of boards that can be synced	6
Readout interface	PCIe x1 @ 200 MB/s
Time base	10 ppb on board

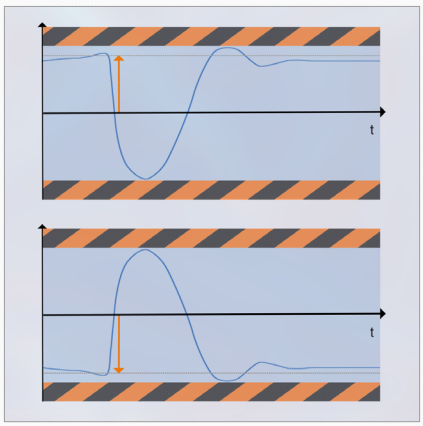
Features

High Precision



The occurring cycle-to-cycle jitter of the TDC8HQ is much lower than the bin size of 13ps. Therefore you can expect an RMS error significantly below 7ps for your measurements.

Bipolar

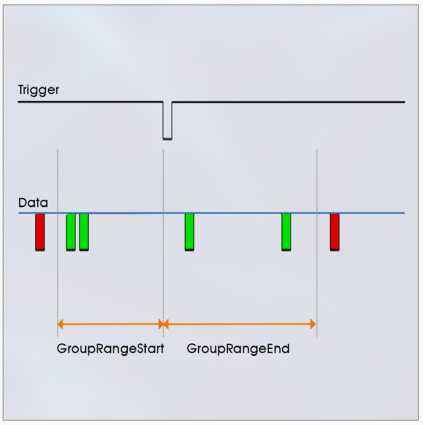


The threshold discriminators can use positive or negative threshold with configurable voltage. This allows you to use the TDC8HQ with a wide range of detectors or constant fraction discriminators (CFD).

TiGer Timing Generator

The LEMO-00 inputs of Channels A-H and TRG can be used to output periodic pulse patterns to control your experimental setup. The exact timing of these is measured by the TDC.

Versatile trigger windows

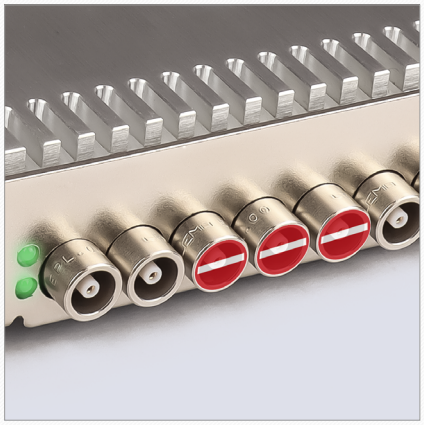


There is no limit in range of time measurement for this TDC. It will output an infinite stream of timestamps for all incoming pulses. In case you prefer common start or common-stop mode, the device can output structured data mimicking these.

Voltage Monitoring ADC

Measure an analog input signal at defined intervals or triggered by an external signal.

Veto or Gate Inputs



You can block inputs from being measured for a certain period of time relative to an input pulse. This reduces buffering requirements and CPU load.

Headquarter:
RoentDek Handels GmbH
Im Vogelshaag 8
65779
Germany

Frankfurt subsidiary:
RoentDek Handels GmbH
c/o Institut für Kernphysik
Max-von-Laue Str. 1
60438 Frankfurt am Main
Germany

USt-Id. / VAT Number:
DE 113 875 060
WEEE-Number: DE48573152
Email: info@roentdek.com
Web: www.roentdek.com