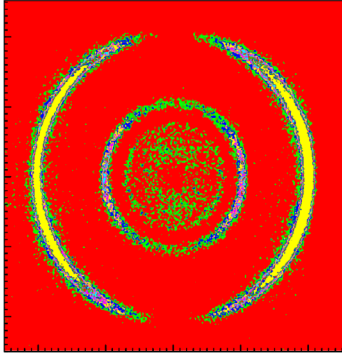


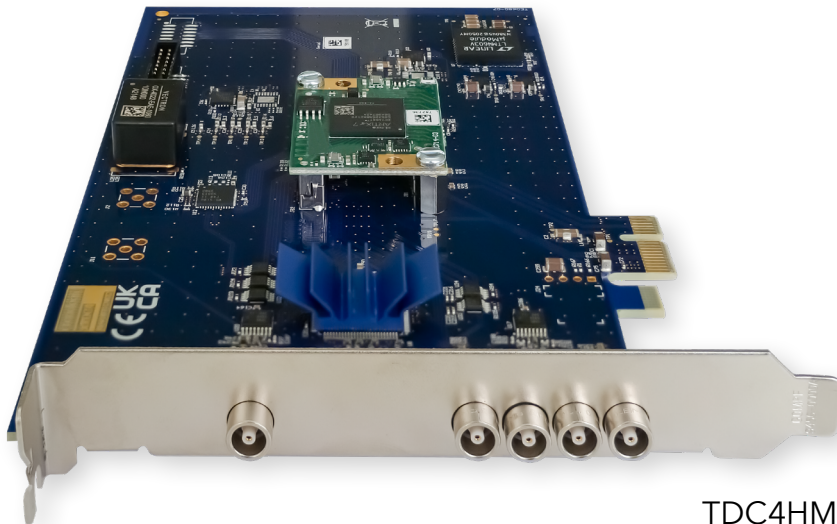


RoentDek

Handels GmbH

**Supersonic Gas Jets
Detection Techniques
Data Acquisition Systems
Multifragment Imaging Systems**

TDC4HM Product Brief



TDC4HM



TDC4HM-TBT

Introduction

The TDC4HM is based on a classic common-start architecture yielding high data throughput. In a common-start scenario, the arrival times of pulses on the "stop"-inputs are measured relative to a signal on the "start"-input. The TDC4HM is ideally suited for a multitude of time-of-flight applications such as TOF mass spectrometry (TOF-MS), time-correlated single photon counting (TCSPC), and LIDAR.

The TDC4HM's four-stop channels allow, for example, to use segmented detectors or measure pulses from a single detector channel at multiple thresholds to obtain rudimentary pulse height information. Such features are beneficial in many TOF-MS applications and LIDAR light detection and ranging. Fluorescence lifetime imaging microscopes (FLIM) benefit strongly from the high timing resolution of the TDC4HM.

The integration of an TDC4HM in applications your data acquisition application is easy. The board provides a stream of simple data structures as a ring buffer, containing a list of relative time stamps for all stop events.

The TDC4HM is also available as desktop device with PCIe-over-USB4 (TDC4HM-TBT).

Technical Data

Optimized for	common start
TDC channels @ bin size	1 AC-coupled start channel 4 AC-coupled stop channels @13 ps
Additional inputs	-
Connectors	5x LEMO 00
Bin size	13 ps
Double pulse resolution	5 ns
TDC timing resolution	8 ps
Multihit	8000x per start event
Dead time between groups	parameter dependent
Readout rate	30 MHits/s total; 11,6 MHits/s per channel
Range	218 μ s default, 14 ms extended
Common start/stop	yes / no
Max. start frequency	4 Mhz
L0 FIFO	16 words/channel
L2 FIFO	10000 words
number of boards that can be synced	no sync possible
Readout interface	PCIe2 x1 @ 400 MB/s (or connects to TBT)
Time base	10 ppb on board

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