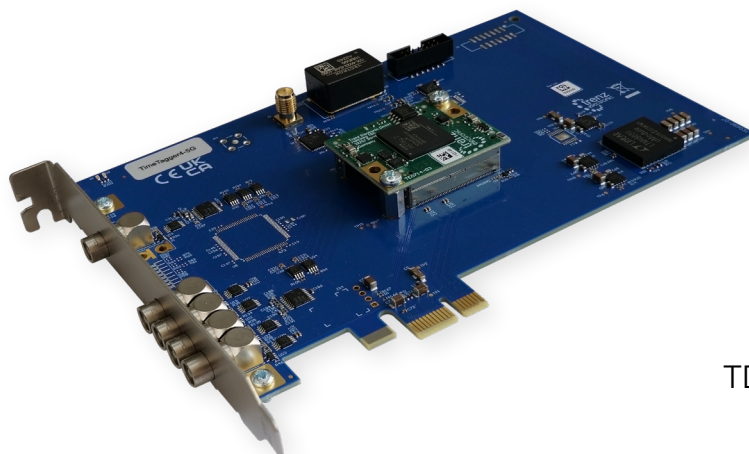# RoentDek
Handels GmbH

Supersonic Gas Jets
Detection Techniques
Data Acquisition Systems
Multifragment Imaging Systems

TDC4HM_lr - Product Brief

TDC4HM_lr-TBT

TDC4HM_lr

Introduction

RoentDek presents an exciting series of low-cost, mid-resolution time-to-digital converters. These time interval analyzers are available as measurement cards or desktop devices and offer a single-shot resolution of 100 ps to 800 ps with a high readout bandwidth.

TDC4HM_lr are ideally suitable in applications that do not require the highest single-shot timing resolution, but high data acquisition rates and the lowest multiple hit deadtime. These include certain types of mass spectroscopy (TOF-MS), time-correlated single photon counting (TCSPC), phase shift measurement, quantum cryptography and frequency counting applications.

TDC4HM_lr are high-throughput, low-cost common start time-to-digital converters (TDCs). The timestamps of leading or trailing edges of digital pulses are recorded from the TDC4HM_lr versions with the following single shot time resolutions (quantization):

- **TDC4HM_lr1.25** and   **TDC4HM_lr1.25-TBT:**   **800 ps**
- **TDC4HM_lr2.5**   and   **TDC4HM_lr2.5-TBT:**   **400 ps**
- **TDC4HM_lr5**   and   **TDC4HM_lr5-TBT:**   **200 ps**
- **TDC4HM_lr10**   and   **TDC4HM_lr10-TBT:**   **100 ps**

The -TBT desktop units can be connected to any Thunderbolt port and any USB4 port that supports PCIe using standard Thunderbolt cables.
For all TDC4HM_lr, cronologic will support you with drivers for Windows and Linux.

Technical Data

Optimized for	low cost
TDC channels	1 AC-coupled start channel 4 AC-coupled stop channels
Connectors	5x LEMO 00 / board-to-board (TDC-Modules)
Bin size (version-dependent)	800 / 400 / 200 / 100 ps
Double pulse resolution	2 bins
Dead time between groups	none
Start rate (version-dependent)	0.625 / 1.25 / 2.5 / 5 GHz burst, 18 MHz sustained
Stops	0.625 / 1.25 / 2.5 / 5 GHits/s per channel for bursts of up to 3900 stops
	40 MHits/s per channel sustained
	60 MHits/s over all channels sustained
Range	1.6 ms, 430 ms extended
measuring mode	common start or continuous
Maximum hits per packet	≈8000 hits
synchronisation of multiple boards	external clock input only
Readout interface	PCIe2 x1 @ 400MB/s / USB4 (-TBT desktop units)