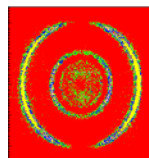


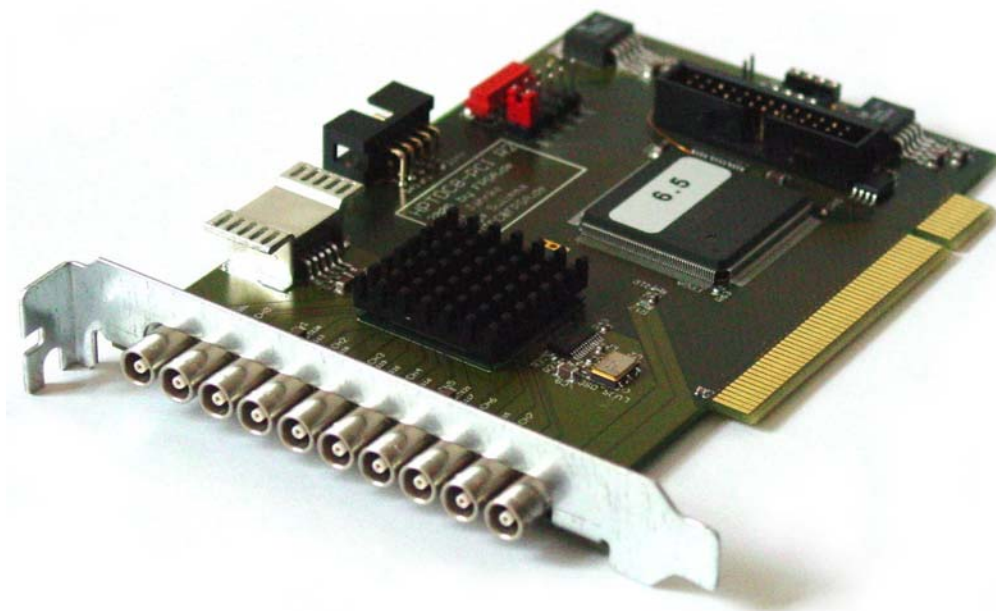
# The TDC8HP(i) multi-hit Time-to-Digital Converter



**RoentDek**  
Handels GmbH  
Supersonic Gas Jets  
Detection Techniques  
Data Acquisition Systems  
Multifragment Imaging Systems

The **TDC8HP** is the latest version of the well-established TDC8-series (<http://roentdek.com>). It is similar in function but has superior performance characteristics:

- time resolution < 40 ps RMS with 25 ps LSB
- unlimited number of hits per channel<sup>1</sup>
- range between -209  $\mu$ s to +209  $\mu$ s or unlimited in “wrap around” mode
- throughput up to 2.000.000 particles/s<sup>2</sup>
- double hit dead-time < 10 ns<sup>3</sup>
- supports Windows 7 to Windows 10 (32bit and 64bit)



The **TDC8HP** has 8 high-resolution multi-hit inputs for NIM signals and one low-resolution input\*. A 10<sup>th</sup> input channel is reserved for an external clock signal to synchronize up to three **TDC8HP** cards.

Notes:

<sup>1</sup> the standard **CoboldPC** data acquisition software limits the hit number to 16, but it can be expanded.

<sup>2</sup> this is an upper limit, which depends on the computer hardware and data acquisition mode.

<sup>3</sup> the dead-time between two hits may be as low as 5 ns, but once more than four hits are registered, every 100 ns only four additional hits can be collected (with 100 ps time precision).

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\* The bin-size of the low-res channels is with 12.8 ns. 10 additional low-resolution channel can be addressed.

## TDC8HPi

The product combination of **TDC8HP** and the **RoentDek PCI2PCIe** is defined as **TDC8HPi**.

The **PCI2PCIe** crate allows operation of up to three **TDC8HP** cards via PCIe bus. The package contains a plug-in card to a desktop PC's PCIe bus or to an equivalent input port of a Laptop/Notebook computer.



PCI2PCIe crate, here with two TDC8HP boards and clock card inserted. A PCIe adapter card and cable connection is shown on the lower right side. Not shown is the mains adapter (12V 3A) with cable.

Using the **PCI2PCIe** crate does not require any other software or driver beyond the standard **TDC8HP** program package when operated via the internal PCI bus of a desktop PC.

Since a PCI bus is not a standard on modern PC any more or has slow chipsets, **RoentDek** provides the **PCI2PCIe** crate standardly with newly purchased **TDC8HP**.

The size of the **PCI2PCIe** box is 140\* x 150 x 205 mm<sup>3</sup>.

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\* not taking into account the sideways cable connection