

# cronologic

TBT2PCIe  
USER GUIDE



TBT2PCIe

[www.cronologic.de](http://www.cronologic.de)

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**Note:** This user guide is under active development.

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# 1 Introduction

Using the **TBT2PCIe** enclosure, it is possible to connect the **TimeTagger4** and **xTDC4-PCIe** time-to-digital (TDC) cards connects to any Thunderbolt™ and to USB4 ports that support PCIe using conventional Thunderbolt™ cables.

This user guide provides an overview of the enclosure. The APIs and interfaces of the respective TDC board within the enclosure are unchanged. Refer to the particular user guides at [www.cronologic.de/support/downloads](http://www.cronologic.de/support/downloads).

This user guide is available at [readthedoc](#) and at [www.docs.cronologic.de](http://www.docs.cronologic.de) as HTML and as PDF download.

## 2 Hardware



**Figure 2.1:** Front and back panel of the **TBT2PCIe** enclosure. The interface at the front panel is the same as the interface of your respective TDC board.

### 2.1 Power requirements

It is possible to supply the **TBT2PCIe** enclosure with sufficient power via the USB4 connector. If that is the case, the LED next to the USB4 port (see [Fig. 2.1](#)) lights up **green** (input voltage > 8 V) and no additional power supply needs to be connected. If the LED lights up **red**, an external power supply is necessary.

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**Note:** No external power supply is provided with the **TBT2PCIe** enclosure.

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In case an external power supply is necessary, we recommend the MeanWell GST40A12-PIJ (12 V DC, 3.34 A) power supply. However, any power supply providing **12 – 17.5 V DC @ 3 A** with a plug as depicted in [Fig. 2.2](#) is sufficient.

If the power supply connected to the EXT PWR socket is sufficient, the LED next to it will light up **green** (input voltage > 11.3 V). If a power supply is connected that does not provide sufficient power, the LED will light up **red**.



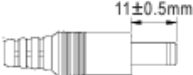

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**Note:** While an external power supply is connected, the **TBT2PCIe** enclosure does not draw power via the USB4 port.

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### ■ DC output plug

© Standard plug: P1J

P1J	Pin Assignment
  	
	<p>Outside ⊖ ⊕ Inside</p> <p>-V not connected to AC FG</p>

**Figure 2.2:** Requirements for plugs fitting the EXT PWR socket of the **TBT2PCIe** enclosure.

## 2.2 Inputs and connectors

Refer to the respective user guide of the particular TDC card that is installed in your **TBT2PCIe** enclosure.

### TimeTagger4:

- [https://download.cronologic.de/TimeTagger/TimeTagger4\\_User\\_Guide.pdf](https://download.cronologic.de/TimeTagger/TimeTagger4_User_Guide.pdf)
- *readthedoc hyperlink*

### xTDC4:

- [https://download.cronologic.de/xTDC4-PCIe/xTDC4\\_User\\_Guide.pdf](https://download.cronologic.de/xTDC4-PCIe/xTDC4_User_Guide.pdf)
- *readthedoc hyperlink*

## 2.3 Environmental conditions

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**Note:** are those values correct? TODO

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- Operating temperature range: 5 to 40°C
- Storage temperature range: -10 to 60°C
- Relative humidity (non-condensing): < 90%

## 3 Technical Data

### 3.1 TDC characteristics

Refer to the respective user guide of the particular TDC card that is installed in your **TBT2PCle** enclosure.

#### TimeTagger4:

- [https://download.cronologic.de/TimeTagger/TimeTagger4\\_User\\_Guide.pdf](https://download.cronologic.de/TimeTagger/TimeTagger4_User_Guide.pdf)
- *Direct link to respective section in readthedocs website*

#### xTDC4:

- [https://download.cronologic.de/xTDC4-PCle/xTDC4\\_User\\_Guide.pdf](https://download.cronologic.de/xTDC4-PCle/xTDC4_User_Guide.pdf)
- *Direct link to respective section in readthedocs website*

### 3.2 Information required by DIN EN 61010-1

#### 3.2.1 Manufacturer

The crate is a product of:

cronologic GmbH & Co. KG  
Jahnstraße 49  
60318 Frankfurt

HRA 42869 beim Amtsgericht Frankfurt/M  
VAT-ID: DE235184378

#### 3.2.2 Intended Use and System Integration

The **TBT2PCle** enclosure is designed to comply with **DIN EN 61326-1** when operated as outlined in this manual. The enclosure does not pose any hazards as defined by **EN 61010-1**.

When handling the enclosure, adequate measures have to be taken to protect the circuits against electrostatic discharge (ESD). *Is that so?*

### 3.2.3 Recycling

cronologic is registered with the “Stiftung Elektro-Altgeräte Register” as a manufacturer of electronic systems with **Registration ID DE 77895909**.

The **TBT2PCle** enclosure belongs to **category 9, “Überwachungs und Kontrollinstrumente für ausschließlich gewerbliche Nutzung”**. The last owner of a **TBT2PCle** enclosure must recycle it, treat the board in compliance with **§11** and **§12** of the German ElektroG, or return it to the manufacturer’s address listed in [Section 3.2.1](#).

### 3.2.4 Export Control

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**Note:** TODO

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## 4 Revision History

### 4.1 TBT2PCIe enclosure

**Rev2 — DD-Mon-JJJJ**  
Initial product release

### 4.2 User Guide

**1.0.0 — DD-Mon-JJJJ**  
initial release