

chronologic

Thunderbolt to PCIe
USER GUIDE



TB12PCIe

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Note: This user guide is under active development.

1 Introduction

The TBT2PCIe crate offers the ability to connect our time-to-digital converters (TDCs), that is,

- [TimeTagger](#)
- [xTDC4-PCIe](#)

to any USB4/Thunderbolt port.

This user guide provides an overview of the crate. The APIs and interfaces of the respective TDC board are unchanged. Refer to the respective user guides at www.cronologic.de/support/downloads.

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

2 Hardware

Figure 2.1 gives an overview of the TBT2PCIe crate with an HPTDC4-PCIe board installed. The front and back panel are shown in Figure 2.2.



Figure 2.1: TBT2PCIe crate with removed top cover and an HPTDC4 board.



Figure 2.2: Front and back panel of the TBT2PCIe crate. The front panel depends on the TDC card that is installed. **Is that so?** The interface at the front panel is the same as the interface of your TDC board.

2.1 Installing a TDC board

1. A list on how to install it

2.2 Power requirements

It is possible to supply the TBT2PCIe crate with sufficient power via the USB-C/Thunderbolt connector. If that is the case, the LED next to the USB-C port (see Fig. 2.2) 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.

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

In case an external power supply is necessary, we recommend the MeanWell GST40A12-P1J (12 V DC, 3.34 A) power supply. However, any power supply providing **12 – 17.5 V DC @ 3 A** with a standard P1J plug (see Fig. 2.3) 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).

Note: While an external power supply is connected, the TBT2PCIe crate does not draw power via the USB-C port.

■ DC output plug

◎ Standard plug: P1J

P1J	Pin Assignment
 	 Outside   Inside -V not connected to AC FG

Figure 2.3: Standard P1J plug fitting the TBT2PCIe crate power socket.

3 Technical Data

3.1 Information required by DIN EN 61010-1

3.1.1 Manufacturer

The **Ndigo5G** is a product of:

chronologic GmbH & Co. KG
Jahnstraße 49
60318 Frankfurt

HRA 42869 beim Amtsgericht Frankfurt/M

VAT-ID: DE235184378

3.1.2 Intended Use and System Integration

The **Ndigo5G** is designed to comply with **DIN EN 61326-1** when operated on a PCIe compliant main board housed in a properly shielded enclosure. When operated in a closed standard compliant PC enclosure the device does not pose any hazards as defined by **EN 61010-1**.

When handling the board, adequate measures have to be taken to protect the circuits against electrostatic discharge (ESD). All power supplied to the system must be turned off before installing the board.

3.1.3 Recycling

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

The **Ndigo5G** belongs to **category 9, “Überwachungs und Kontrollinstrumente für ausschließlich gewerbliche Nutzung”**. The last owner of an **Ndigo5G** 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 3.1.1](#).

3.1.4 Export Control

Note: TODO
