



## StarTech com Thunderbolt 3 to USB 3.1 Controller – 1x USB-C, & 3x USB-A Instruction Manual

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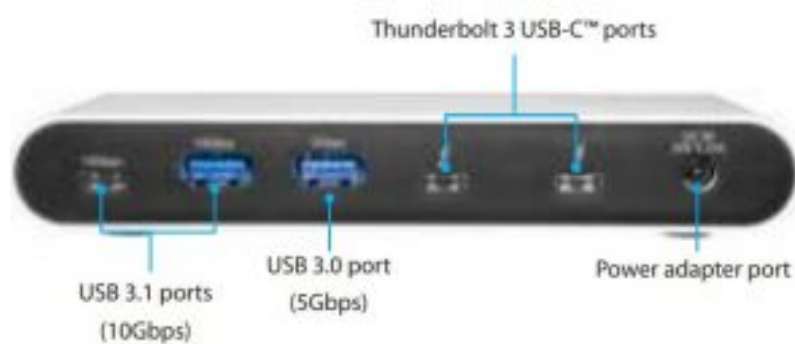
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## Product Diagram

### Front view



### Back view



## Package Contents

- 1 x Thunderbolt 3 controller
- 1 x Thunderbolt 3 cable
- 1 x universal power adapter (NA/JP, UK, EU, ANZ)
- 1 x quick-start guide

## Requirements

- Host computer with a Thunderbolt 3 port
- Any of the following operating systems:
  - Windows® 10 (32-bit or 64-bit)
  - Windows 8 (32-bit or 64-bit)
  - Windows 7 (32-bit or 64-bit)
  - macOS 10.12 or newer
- AC electrical outlet

**Note:** To connect a display, you must use one of the Thunderbolt 3 USB-C ports on the controller. To use the Thunderbolt 3 controller with HDMI, DisplayPort, DVI, or VGA displays, you may need to purchase additional adapters and cabling.

Video output capabilities are dependent on the video card and hardware specifications of your host laptop.

Requirements are subject to change. For the latest requirements, please visit [www.StarTech.com/TB33A1C](http://www.StarTech.com/TB33A1C).

## About Thunderbolt 3

Thunderbolt 3 technology uses the USB-C connector and offers bandwidth speeds up to 40Gbps. It supports USB 3.1 ports, and Thunderbolt 3 ports. You must use Thunderbolt 3 cables when connecting any Thunderbolt 3 product.

### Updates

The Thunderbolt 3 ports on your laptop might not function properly until you update one or more of the following on your laptop:

- BIOS
- Thunderbolt firmware
- Thunderbolt 3 controller drivers
- Thunderbolt 3 software

The required updates will vary depending on your laptop. For an up-to-date list of affected computers and instructions,

visit [www.thunderbolttechnology.net/updates](http://www.thunderbolttechnology.net/updates). If your manufacturer isn't listed on the Thunderbolt website, contact your manufacturer.

## Connect multiple Thunderbolt 3 devices in a daisy chain

You can connect multiple Thunderbolt 3 devices, including displays, in a daisy-chain formation. For example, you can connect a Thunderbolt 3 display to the Thunderbolt 3 USB-C port on the controller, then connect another Thunderbolt 3 device through the Thunderbolt 3 display that you connected to the controller.

## DP Alt Mode (DisplayPort Alternate Mode)

DP Alt Mode is a specification that allows a DisplayPort video signal to be transferred over a USB-C port.

Thunderbolt 3 supports the full functionality of the USB-C standard, including support for DP Alt Mode, which means this controller supports DP Alt Mode, and you can connect Thunderbolt 3 or USB-C based video devices, cables, or adapters to the secondary Thunderbolt 3 ports on the rear of the controller.

Thunderbolt technology supports both video and data throughput, but prioritizes video bandwidth when a display is connected, to help ensure seamless display performance. The performance quality of the remaining controller functions depends entirely on your display configuration. To view the full range of USB-C video adapters and cables that StarTech.com offers, navigate to

**Note:** Video adapters can limit the maximum available resolution. To determine the maximum resolution your video adapter supports, consult the documentation that came with the video adapter.

### About USB 3.0 and USB 3.1 Gen 1 and Gen 2

USB 3.0 is also known as USB 3.1 Gen 1. This connectivity standard offers speeds up to 5Gbps. Any mention of USB 3.0 in this manual or on the StarTech.com website for TB33A1C refers to the 5Gbps USB 3.1 Gen 1 standard. Any mention of USB 3.1 Gen 2 refers to the 10Gbps Gen 2 standard.

### About the Controller's ports

The left most USB 3.1 Type-A and the USB 3.1 Type-C ports on the back panel of the controller are standard USB 3.1 Gen 2 throughput ports. The right most USB 3.0 Type-A port on the back panel of the controller is a standard USB 3.0 port. When the controller is connected to a host laptop, these ports provide a standard USB 3.1 power output to power or charge your device.

The Battery Charge 1.2 compatible USB 3.0 port on the front panel of the controller is compliant with USB Battery Charging Specification Revision 1.2 (BC1.2), which means that you can use the port to connect and charge a device faster than you can using a traditional standard USB port.

This front USB port can charge a connected device even when the controller isn't connected to a host laptop. When the controller is connected to a host laptop, the front USB 3.0 port functions as a Charging Downstream Port (CDP), which has simultaneous charge and sync capabilities. The provided power adapter must always be connected to the controller in order to charge a device using the Battery Charge 1.2 compatible USB 3.0 Type-A port.

### Install the Controller

The controller is natively supported when connected to a supporting operating system. The controller will automatically detect and install the required drivers when connected to a Thunderbolt 3 port on your host laptop.

#### Power the Controller

Select the appropriate power cord for your region and connect it to the power adapter.

1. Connect the power adapter to an AC electrical outlet and then to the controller's power port.

#### Connect the Controller

1. Connect any of your display(s) to the controller's Thunderbolt 3 port (for example, DisplayPort or Thunderbolt 3 displays).

**Note:** For dual-display configuration requirements, see the "Bandwidth allocation" section.

2. Connect the provided Thunderbolt 3 cable to a Thunderbolt 3 port on your host laptop and to one of the Thunderbolt 3 USB-C ports on the controller.

**Note:** Either of the Thunderbolt 3 USB-C ports on the controller can be used to connect to your host laptop.

3. **A New Thunderbolt devices** pop-up message will appear on your laptop screen, click OK.
4. Select **Always Connect** in the drop-down list, and click **OK**.

**Note:** Once the controller is installed you can connect any of your peripherals to the controller (for example, USB devices, Thunderbolt 3 devices).

### Bandwidth Allocation

Thunderbolt technology carries video and data bandwidth, and it prioritizes video bandwidth to help ensure

seamless display performance. The performance of the remaining ports (for example, the USB 3.1 ports) depends entirely on the display and I/O (input and output) configuration that you are using.

If you connect multiple high-resolution displays (USB-C MST hub required), the controller box needs to allocate additional bandwidth to the displays and the extra bandwidth is reallocated from the other I/O ports on the controller. In this situation there is less bandwidth available for the remaining ports (for example, the USB 3.1 ports).

- The bandwidth values are approximate and depend on several variables including the number, type, resolution, and refresh rate of your connected display(s).
- When you connect a display to one of the Thunderbolt 3 USB-C ports, depending on the input of your display, you may require a USB-C video adapter.

Video and I/O Configuration	Thunderbolt 3 USB-C resolution	I/O bandwidth remaining
Data only (no displays)	N/A	Download: 22Gbps Upload: 22Gbps
Single display – 4K	4096 x 2160p (4K)	Download: 22Gbps Upload: 22Gbps
Two displays – Dual-4K (MST hub required)	4096 x 2160p (4K)	Download: 8Gbps Upload: 22Gbps

## Troubleshooting

If you're experiencing issues, there are some quick tests that you can complete to narrow down the source of the issue.

### Update your computer to use Thunderbolt 3

Visit <http://thunderbolttechnology.net/updates> and look for your computer in the list of affected computers. If your computer is listed, then you must update your computer for its Thunderbolt 3 ports to function properly. To update your computer, follow the instructions on the website or contact your manufacturer.

### Verify that your components are Thunderbolt compliant

- Make sure that the port on your computer is Thunderbolt 3 compliant. Thunderbolt 3 uses the USB-C connector type, but not all USB-C connectors are compatible with Thunderbolt 3. If you're using a USB-C port that is not Thunderbolt 3 compliant, switch to a port that is Thunderbolt 3 compliant.
- Make sure that all of your connected peripherals are Thunderbolt compliant. If you use non-compliant cables or other peripherals in your setup, you could experience an unstable or non-functioning setup. If you're not sure if your cables and peripherals are Thunderbolt compliant, check with the manufacturer.

### Replace the Thunderbolt 3 cable

- Use the controller with a different cable that is Thunderbolt compliant.

### Test the Controller

- Use the controller in a second setup. If the controller works in the second setup, then the first setup is probably the source of the issue.

- Use a second, known good, Thunderbolt 3 device (if available), and see if it works with the computer that's having issues. Ideally, the second device is one that you know works in a different setup. If the second device works with the computer that's been having the issues, contact StarTech.com Support for further assistance.

## Important operation notes

- Certain monitors may be limited to 4K at 30Hz when connecting through a DisplayPort adapter. These monitors include the following models: Dell P2715Q, Viewsonic VX2475Smhl-4K, Philips 288P6LJEB, LG 31MU97C-B, Asus PB287Q (these models will need to be set to 4K at 30Hz).

## Technical support

StarTech.com's lifetime technical support is an integral part of our commitment to provide industry-leading solutions. If you ever need help with your product, visit [www.startech.com/support](http://www.startech.com/support) and access our comprehensive selection of online tools, documentation, and downloads. For the latest drivers/software, please visit [www.startech.com/downloads](http://www.startech.com/downloads)


## Warranty information

This product is backed by a two-year warranty. StarTech.com warrants its products against defects in materials and workmanship for the periods noted, following the initial date of purchase. During this period, the products may be returned for repair, or replacement with equivalent products at our discretion. The warranty covers parts and labor costs only. StarTech.com does not warrant its products from defects or damages arising from misuse, abuse, alteration, or normal wear and tear.

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## Documents / Resources

 <p>StarTech.com Thunderbolt 3 to USB 3.1 Controller - 1x USB-C, &amp; 3x USB-A</p>	<p><a href="#">StarTech.com Thunderbolt 3 to USB 3.1 Controller - 1x USB-C, &amp; 3x USB-A</a> [pdf]</p> <p>Instruction Manual</p> <p>Thunderbolt 3 to USB 3.1 Controller - 1x USB-C 3x USB-A, TB33A1C</p>
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## References

- [Unsere Produkte dienen IT- und A/V-Profis zum Verbinden, Konvertieren, Erweitern, Splitten und Switchen | Deutschland](#)

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- [!\[\]\(3278d6283d12f18012b5aa7d40747611\_img.jpg\) Pezzi per computer, cavi, switch KVM, server rack e soluzioni per reti | Italia](#)
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- [!\[\]\(1136f3a14b3ba5842784adf33e611db1\_img.jpg\) Thunderbolt 3 to USB 3.1 Host Controller - USB 3.0 Hubs](#)
- [!\[\]\(d536ae100fbef949d5488b8fe23458f5\_img.jpg\) Thunderbolt™ Updates | Thunderbolt Technology Community](#)

Manuals+.