

Thunderbolt 3 Dual-4K Docking Station

TB3DK2DPPD
TB3DK2DPPDUE



*actual product may vary from photos

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

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Introduction

This Thunderbolt™ 3 dock is one of the first Thunderbolt docking stations to support power delivery. This means that it can deliver up to 85W of power to your Thunderbolt 3 equipped MacBook or laptop. Plus, the dock supports dual monitors, so you can easily connect two 4K Ultra HD displays (one DisplayPort and one Thunderbolt 3 USB-C™ port), or a single Thunderbolt 3 display.

This dock features a range of input and output ports, such as DisplayPort, Gigabit Ethernet, USB fast-charge, USB 3.0, USB-C™, headphone, microphone, and Thunderbolt 3. Now you can use a single cable to power and charge your laptop, and connect your peripherals at the same time.

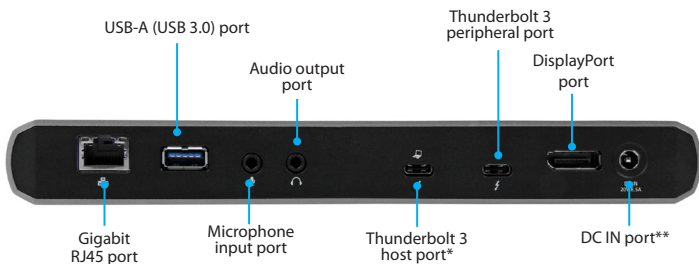
Product diagram

Front view



*5Gbps - downstream data-only port

Rear view



*Connects to your Thunderbolt 3 laptop

**Power-input port

Package contents

- 1 x Thunderbolt 3 docking station
- 1 x Thunderbolt 3 cable
- 1 x universal power adapter
- 2 x power cords (NA/JP and ANZ for TB3DK2DPPD) (EU and UK for TB3DK2DPPDUE)
- 1 x instruction manual

Requirements

- Host laptop with an available Thunderbolt 3 port (your laptop's Thunderbolt 3 port must support USB Power Delivery in order to power and charge your laptop).
- Available AC electrical outlet.
- DisplayPort equipped display(s) with cable(s) as needed (for additional external display).
- Thunderbolt 3 equipped display(s) with cable(s) as needed (for additional external display).
- For dual-display configurations: You must use one of the docking station's Thunderbolt 3 ports. You may need to purchase a separate adapter to connect an HDMI, a DVI, or VGA display. See the "Configure a display device" section for more details.
- For 4K x 2K (4096 x 2160p) resolution, a 4K-capable display is required.
- Any of the following operating systems:
 - Windows 10® (32-bit or 64-bit)
 - Windows 8 / 8.1 (32-bit or 64-bit)
 - Windows 7 (32-bit or 64-bit)
 - macOS 10.12 (Sierra)

Requirements are subject to change. For the latest requirements, please visit www.StarTech.com/TB3DK2DPPD or www.StarTech.com/TB3DK2DPPDUE.

About Thunderbolt 3

Thunderbolt 3 technology uses the USB-C connector, and offers bandwidth up to 40Gbps. It supports USB 3.1, DisplayPort 1.2, PCI Express 3.0, and USB Power Delivery.

Thunderbolt 3 products must be used with Thunderbolt 3 cables.

Your computer's Thunderbolt 3 ports might not function properly until you update one or more of the following on your computer:

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

The required updates will vary depending on your computer.

For an up-to-date list of affected computers and instructions, visit <http://thunderbolttechnology.net/updates>. If your computer's manufacturer isn't listed on the Thunderbolt website, contact the manufacturer for more information.

DP alt mode (DisplayPort alternative mode)

This docking station supports DP alt mode, which means a DisplayPort video signal can be transferred over a USB-C cable. Thunderbolt 3 supports the full USB-C standard, including support for DP alt mode. Because the docking station supports DP alt mode, you can connect Thunderbolt 3 or USB-C based video devices, cables, or adapters to the secondary Thunderbolt 3 port on the rear of the docking station.

USB Power Delivery

This docking station supports USB Power Delivery, which means it delivers up to 85 watts of power to your connected host laptop (your laptop's Thunderbolt 3 port must support power delivery). USB Power Delivery is a specification that allows power to be sent over a USB-C or Thunderbolt 3 cable that supports the specification.

Thunderbolt temperature

Due to the high performance of Thunderbolt technology, Thunderbolt products sometimes generate more heat than traditional hardware. Therefore, it's normal for the docking station to warm up when in use. It's recommended that you don't place your laptop on the docking station's surface, as doing so will result in even higher temperatures.

These higher temperatures do not represent a safety hazard to users or to hardware.

About USB 3.0 and USB 3.1 Gen 1

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 TB3DK2DPPD or TB3DK2DPPDUE 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.

USB-C ports

Not all USB-C ports support the full functionality of the USB Type-C™ standard. Some ports might only provide data transfer, and might not support video (DP alt mode) or USB Power Delivery. The docking station includes two USB-C ports:

- The **USB-C port** on the front panel is not a Thunderbolt 3 port. You can use this port to connect peripherals using USB 3.0 (5Gbps) technology. This port supports data throughput only. The port does not support DP alt mode or USB Power Delivery.
- The **USB-C ports** on the rear panel are Thunderbolt 3 ports with a USB-C connector. One port is for connecting to a host laptop, while the second can be used as a Thunderbolt 3 port or a USB-C port. When used as a USB-C port, it lets you connect peripherals using USB 3.1 Gen 2 (10Gbps) technology. These ports support DP alt mode and USB Power Delivery.

About the docking station ports

The **USB-A (USB 3.0) port** on the rear panel of the docking station is a standard USB 3.0 throughput port. When the dock is connected to a host laptop, this port provides a trickle charge to a selection of USB-charged devices.

The **USB 3.0 fast-charge and sync port** on the front panel of the docking station 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 3.0 port.

This front USB 3.0 port can fast-charge a connected device even when the dock isn't connected to a host laptop. When the docking station 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 docking station in order to charge a device using the **USB 3.0 fast-charge and sync port**.

Install the docking station

The docking station is natively supported when connected to a Windows 10, Windows 8 / 8.1, or macOS 10.12 (Sierra). In these operating systems, the docking station will automatically detect and install the required drivers when connected to a Thunderbolt 3 port on your host laptop. However, if the computer is running Windows 7 users will need to download and install the required drivers. Follow the instructions below to install the docking station.

Power the docking station

1. Select the appropriate power cord for your region and connect it to the power adapter.
2. Connect the power adapter to an AC electrical outlet and then to the docking station's **DC IN** (power-input) port.

Connect the docking station

1. Connect your external display(s) to the docking station (for example, DisplayPort or Thunderbolt 3 displays).
Note: See the "Configure a display device" section for dual-display configuration requirements.
2. Connect your peripherals to the docking station (for example, USB devices, RJ 45 network).
3. Connect the provided Thunderbolt 3 cable to a Thunderbolt 3 port on your host laptop and to the **Thunderbolt 3 host port** on the docking station.
Note: You must connect your laptop to the docking station's Thunderbolt 3 host port.

Driver installation

Install drivers in Windows 10 or Windows 8 / 8.1, or macOS 10.12 (Sierra)

When the docking station is powered and you connect it to your laptop, the required drivers will install automatically.

You may see a pop-up message requesting permission to allow the docking station to connect to your computer. If a pop-up message appears, do the following:

1. Click on the pop-up message.
2. Click **Always Connect**.

3. Click **OK**.
4. Follow any other on-screen instructions to complete the installation.

Install drivers in Windows 7

Install natively supported drivers

When the docking station is powered and connected to your host laptop, some of the device drivers will install automatically.

You may see a pop-up message requesting permission to allow the docking station to connect to your computer. If a pop-up message appears, do the following:

1. Click on the pop-up message.
2. Click **Always Connect**, in the **Approve Thunderbolt™ Device Attached to Port** drop-down list.
3. Click **OK**.
4. Follow any other on-screen instructions.

Install Ethernet drivers

1. Download the latest driver. Use a web browser and navigate to www.StarTech.com/TB3DK2DPPD or www.StarTech.com/TB3DK2DPPDUE.
2. Click the **Support** tab.
3. Download the **Intel_I21x.zip** driver.
4. When the download is complete, extract the contents of the compressed file that you downloaded.
5. Navigate to the location where you extracted the driver contents, and open the **Windows** folder.
6. Double-click the **Setup.exe** file and follow the on-screen instructions to complete the Ethernet driver installation process.

Install USB video drivers

1. Download the latest driver. Use a web browser and navigate to www.StarTech.com/TB3DK2DPPD or www.StarTech.com/TB3DK2DPPDUE.
2. Click the **Support** tab.
3. Download the **Fresco_FL1100.zip** driver.
4. When the download is complete, extract the contents of the compressed file that you downloaded.
5. Navigate to the location where you extracted the driver contents.
6. Double-click the **Setup.exe** file and follow the on-screen instructions to complete the USB driver installation process.

Charge a device

If you're only using the front USB 3.0 port to charge a device, a connection to a host laptop isn't required.

- To charge a device, connect it to the **USB 3.0 fast-charge and sync port**.

Note: This front USB 3.0 port can only fast-charge connected devices that comply with USB Battery Charging Specification Revision 1.2.

Connect and configure your displays

Connect a display to the DisplayPort port

The docking station's DisplayPort connection supports DisplayPort 1.2, as well as DP++. Because the port supports DP++, you can use passive adapters or cables to connect different types of monitors to the DisplayPort port.

Connect a display to the Thunderbolt 3 port

You can also connect a display (or a display adapter) to one of the docking station's **Thunderbolt 3** ports.

Type of display	Adapter needed (sold separately)
DisplayPort	None
HDMI	DisplayPort to HDMI 4K Audio / Video Converter (DP2HD4KS)
DVI	DisplayPort to DVI Adapter (DP2DVI2)
VGA	DisplayPort to VGA Adapter (DP2VGA2)

Type of display	Adapter needed (sold separately)
DisplayPort	USB-C to DisplayPort Adapter Cable (CDP2DPMM1MB)
HDMI	USB-C to HDMI Adapter (CDP2HD4K60)
DVI	USB-C to DVI Adapter (CDP2DVI)
VGA	USB-C to VGA Adapter (CDP2VGA)

Visit www.StarTech.com/AV/usb-c-video-adapters/ for a range of USB-C video adapters and cables.

Notes:

- The docking station lets you connect two 4K displays.
- The maximum available resolution may be limited if your monitor is connected through a video adapter. Check the documentation of the video adapter to determine its maximum supported resolution.

Connect multiple Thunderbolt 3 displays in a daisy chain

You can also set up dual displays using multiple Thunderbolt 3 displays in a daisy-chain configuration. For example, you can connect a Thunderbolt 3 display to the **Thunderbolt 3 port** on the docking station. You can then connect another Thunderbolt 3 device, such as a second Thunderbolt 3 display, through the first Thunderbolt 3 display.

Configure your displays

Use your Windows operating system to adjust display settings for multiple monitors. Your laptop hardware must support dual external displays through its Thunderbolt 3 port.

Supported video resolutions

Thunderbolt technology supports both video and data throughput. However, it prioritizes video bandwidth to help ensure seamless display performance. The performance of the remaining dock functions depends entirely on the display configuration you used.

The docking station supports the follow maximum resolutions:

Number of Displays	Ports	Maximum Resolution
1	DisplayPort port	4096 x 2160p
1	Thunderbolt 3 USB-C port	4096 x 2160p (60Hz)
2	DisplayPort port and Thunderbolt 3 USB-C port	4096 x 2160p

- Depending on the configuration and the supported resolutions of your connected monitor(s), the docking station can support video resolutions lower than specified above.
- In a multi-display configuration, set the refresh rates on each of your connected monitors to the same values, otherwise your monitors might not properly display.
- Video output capabilities are dependent on the video card and hardware specifications of your connected host laptop.

Video resolution 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 dock ports (for example, the USB 3.0 ports) depends entirely on the display and I/O (input and output) configuration that you have used.

When multiple high-resolution displays are connected, the docking station needs to allocate additional bandwidth to the displays, and the extra bandwidth is reallocated from the other I/O ports on the docking station. In this situation there is less bandwidth available for the remaining ports (for example, the USB 3.0 ports).

The bandwidth allocation table outlines the approximate download bandwidth allocation values. The allocation amount depends on the number and the resolution of your connected displays.

Video and I/O Configuration	DisplayPort Resolution	Thunderbolt 3 USB-C Resolution	I/O Bandwidth Remaining
Data only (No Displays)	N/A	N/A	Download: 22Gbps Upload: 22Gbps
DisplayPort (Single Display - 4K)	4096 x 2160p (4K)	N/A	Download: 22Gbps Upload: 22Gbps
Thunderbolt 3 USB-C (Single Display - 4K)	N/A	4096 x 2160p (4K - 60Hz)	Download: 22Gbps Upload: 22Gbps
DisplayPort and Thunderbolt 3 USB-C (Two Displays - Dual-4K)	4096 x 2160p (4K)	4096 x 2160p (4K)	Download: 8Gbps Upload: 22Gbps

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

Troubleshooting

If you are experiencing device detection 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 computer's manufacturer.

Verify that your components are Thunderbolt compliant

1. Make sure that you are using Thunderbolt 3 certified cables.
2. 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 are using a USB-C port that is not Thunderbolt 3 compliant, switch to a port that is Thunderbolt 3 compliant.
3. Make sure that your peripheral is Thunderbolt compliant. If you're not sure, check with the manufacturer.

Replace the Thunderbolt cable

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

Test the Thunderbolt peripheral

1. Use a second Thunderbolt peripheral, and see if it works. Ideally, the second peripheral is one that you know works in other setups. If the second peripheral works in the current setup, then there is probably an issue with the first Thunderbolt peripheral.
2. Use the Thunderbolt peripheral with a second setup. If it works in the second setup, then there is probably an issue with the first setup.

Verify USB Power Delivery support

- Your laptop's Thunderbolt 3 port must support USB Power Delivery 2.0 in order to power and charge your laptop.
- Your laptop's USB Power Delivery draw must be equal to or less than 85 watts of power.

Technical support

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For the latest drivers/software, please visit www.startech.com/downloads

Warranty information

This product is backed by a three-year warranty.

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