Taiko Audio Extreme DC Power Distributor Manual

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The Concept

Housed in a beautiful 16 x 16 x 5 cm / 6,30 x 6,30 x 1,97 inch solid copper chassis, the Extreme DC Power Distributor (DCD in short), is a power “splitter” (not a power supply) that allows multiple devices to be powered from a single power supply while minimizing “cross contamination”.

The Extreme DC Power Distributor offers 3 different filter outputs, allowing the user to tune the sound towards a neutral balance even with varying power supplies and mains conditions, or throughout component changes.

Each of the DCD’s filters provides over 80dB of additional noise filtering. The filter’s 64 parts have been selected by ear; some are exotic and costly, like Duelund capacitors, and each has a clearly audible effect on the Sound Quality.

The DCD is designed to pair perfectly with the Extreme Switch and Extreme Router. It can also be used to power virtually every component that requires up to 25 Volts and a combined 10 Amps.

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Background

The Extreme DC Power Distributor is a recent development resulting from discoveries made while addressing noise issues associated with Wi-Fi access points. We have years of experience with DC power supply filtering but zooming in on specific aspects of noise and the way they affect sound quality took an interesting turn when investigating noise generated by devices which are not designed with sound quality in mind. For example, the discovery that the degradation caused by Wi-Fi noise is not dominated by the airborne / radio function but by its interaction with the supply that powers it, and how that in turn affects the mains supply which powers our entire systems, gave us a different perspective to investigate.

We started analyzing these noise spectra and have designed filters to specifically target this type of noise, to discover that this is a limited solution, as the supply powering the device is a big part of the equation. To make matters worse, different designs interact differently, with rather dramatically differing effects on sound quality as a result. This even applies to a Wi-Fi access point which is only connected to the mains, as the connection on the output side of the device is airborne.

While testing a variety of power supply designs and various filters, the Extreme Switch and router turned out to perform better being powered by a single power supply instead of dual power supplies. This is because a 2nd power supply, even a very low noise linear design, produces more (interacted) noise than the Switch and Router combined. Additionally, when you connect the Switch and Router with the lowest noise-producing option, being a DAC cable, there's a direct/common ground between the two devices, which is unfavorable if it is "modulated" by two different power supplies.

Simply put, one shared ground is better from a noise perspective, taking into account the very low current draw of both devices. Still, the Switch drawing 100mA is an unavoidably lower-noise device than the router which draws 500mA and which performs more processing. Hence there's a benefit in "isolating" these 2 devices from each other while maintaining a common "ground" and reducing total setup noise by using a single power supply.

Each of the filters provide over 80dB of additional noise filtering. The filter’s 64 parts have been selected by ear, some are exotic and costly, like Duelund capacitors, and each of these have a clearly audible effect at this level.

We started with two Default filters which we consider to be neutral sounding. They don't change the sound, they just (significantly) improve upon what's there, improving communication and the sense of realism. The extent of their effectiveness was truly surprising as it is far from subtle, perhaps as much as a 20% improvement on the whole package.

What we consider neutral is in reference to a Battery Power Supply, i.e., no influences from the power grid or components connected to it. But the plot thickens when using different power supplies and when mains "quality" differs. For that reason, we included two alternative filters that allow tuning the sound towards getting a neutral balance even with varying power supplies and mains conditions. Alternatively, the user may deliberately divert from neutral to taste or as required following component changes. These alternative filters allow the user to "tune the sound" towards either a darker, fuller, warmer, smoother, and more expansive sound, or a tighter, brighter, more incisive, and subjectively more detailed sound.

Connections

You can use the Wall-Wart Power Supply that was included with the Extreme Switch or Extreme Router and this will yield great results. However, higher-end power supplies will yield further increases in Sound Quality.

- Input: Connect your power supply of choice, maximum input voltage is 25V (voltage in = voltage out)
- Unfiltered: Direct-coupled to the input
- Unfiltered: Direct-coupled to the input
- Default: Neutral Filter Output, our recommended starting point
- Default: Neutral Filter Output, our recommended starting point
- Alt1: More “analytical”: Brightly-lit, crisp, articulate, explicit, rhythmic, and exciting.
- Alt2: More “natural”: Sonorous, tonally saturated, well-textured, and harmonically rich.

Recommended Use

The Extreme DC Power Distributor is supplied with two DC cables that can be used to power the Extreme Router and Extreme Switch. You may also use aftermarket DC cables, but please make sure the connectors are a good fit. For an ideal fit, the outside diameter, as well as the inside diameter, need to be compatible.

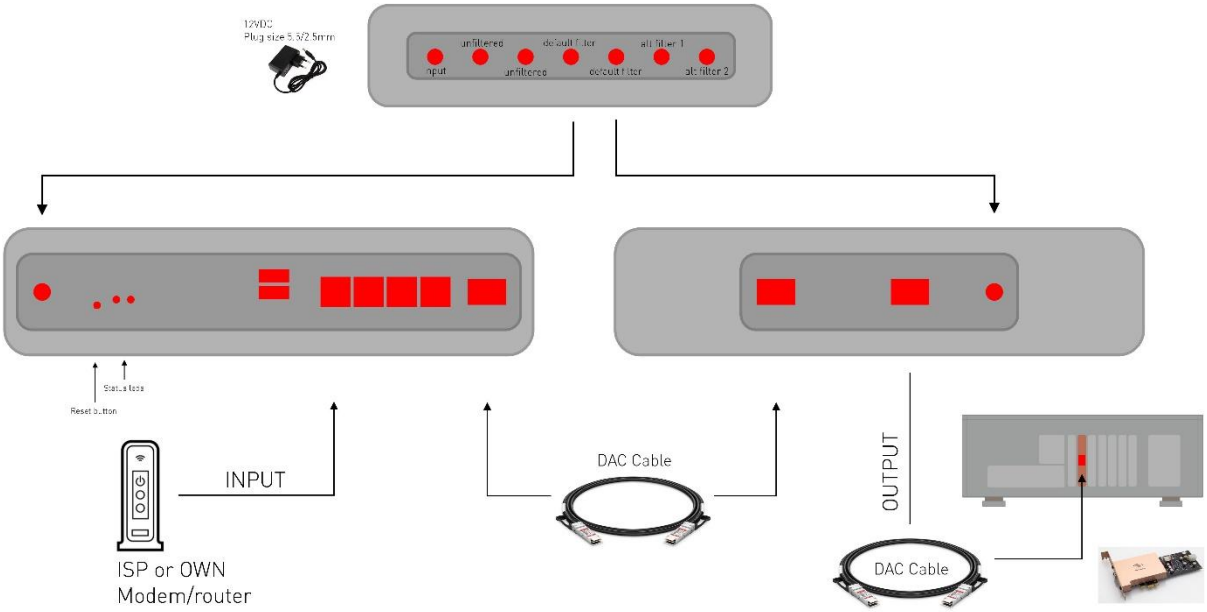
We recommend starting with both the Switch and Router connected to the Default filter outputs. These are balanced such that they inhabit a neutral position between two extremes.

Then, you may change the Switch to Alt1 and Alt2. After establishing a preference, you can try swapping Router and Switch to see which way you prefer. Don’t worry about it too much – there is no right or wrong. If it sounds good, it is good!

The Unfiltered Outputs are provided for experimental use. They do not normally come into play.

Connection Diagram

The Extreme DC Power Distributor is typically used to power the Taiko Audio Extreme Router and Extreme Switch.



For more information about the Router and Switch, please navigate to the Downloads section on the Taiko website: https://taikoaudio.com/taiko-2020/taiko-audio-downloads

Installation

To ensure the correct IP address allocation for the Router, Switch, and Extreme Music Server, we recommend sticking with the following order.

1. Extreme Router
2. Extreme Switch
3. Extreme Music Server

Solving Connectivity Issues

In case of connectivity Issues, please follow the below routine.

1. Power OFF the router and the switch by unplugging their DC cables. Turn OFF the Extreme Server from the button on the front. Leave the DC Distributor (if you have one) powered ON.
2. Power ON the router first. Wait 2 minutes.
3. Power ON the switch. Wait 1 minute.
4. Power ON the Taiko Extreme.
5. Connect to the Taiko Wi-Fi network.

Technically, Fetch IP in XDMS should work at this point (from the device connected to the Taiko Wi-Fi network). If it does not, you can run an IP scanner to discover the Extreme Music Server's IP address.

Roon should also work automatically from the device connected to the Taiko Wi-Fi. If it does not, try restarting the Roon app on your tablet/computer. In any case, make you sure you are connected to the Taiko Wi-Fi network.

Roon remotes should also work from the upstream network. The router is setup to allow Roon discovery from the “WAN” side, and in this case your “WAN” is your current home network.

In other words, Roon remote should also work when you are connected to your home Wi-Fi network and not to the “taiko audio” Wi-Fi.

Specifications

Chassis machined from a solid block of copper

Maximum input voltage: 25V (voltage in = voltage out)

Maximum current capacity: 10A

Earth/Grounding Screw: M6 (use length as needed)

Dimensions with feet: 16 x 16 x 5 cm / 6,30 x 6,30 x 1,97 in

Dimensions without feet: 16 x 16 x 4 cm / 6,30 x 6,30 x 1,57 in

Connector Dimensions: 2.5mm inner / 5.5mm outer / 11.3mm length (14mm recommended)

Weight: 5.2 kg (11.5 lbs)

Available in Chrome and Black finish