

## FireNEX™-UDC-40G

# Compact 40Gbps USB4 Repeater

Dual USB-C, 16K Display and 60W PD



## OVERVIEW

The FireNEX™-UDC-40G is a compact, high-performance 2-port USB4 repeater that actively adapts and expands one upstream 40Gbps USB-C port into two downstream 40Gbps USB-C ports, delivering full-feature USB-C with support for USB4, DisplayPort 2.1, and Thunderbolt 4. It is backward compatible with USB 3.2 Gen 2/Gen 1, USB 2.0/1.1, DP 1.4/1.2, and Thunderbolt 3, with automatic 2-lane/4-lane switching for DisplayPort Alt Mode and 60W power delivery for charging.

Unlike previous USB generations, USB4's higher data rates demand stricter signal integrity, making passive adapters and couplers no longer reliable due to their signal loss. The FireNEX™-UDC-40G is designed with superior signal integrity and functions as an active re-timer/repeater or a hub switch, ensuring stable transmission of data, video, and power when joining two USB-C cables.

Designed for Pro AV, IT, and meeting room installations, the FireNEX™-UDC-40G includes an XLR D-series mounting bracket for seamless integration into enclosures or racks. With broad compatibility across USB4, Thunderbolt, USB 3.2, and DP Alt Mode devices, it eliminates setup uncertainty and provides plug-and-play confidence in professional environments.

## FEATURES

- Two full-feature USB4 downstream ports
- Supports 40Gbps USB4; Thunderbolt compatible
- Backward compatible with USB 3.2 Gen2x2/Gen2x1/Gen1, USB 2.0/1.1
- DisplayPort 2.1 support; up to 2x 16K@60Hz display operates simultaneously
- DP Alt Mode support with automatic 2-lane/4-lane switching
- Integrated PCIe Switch supporting PCIe tunneling
- Up to 60W power delivery to charge the USB-C host
- Active re-timer for reliable multi-cable USB-C setups
- XLR D-series bracket for professional mounting and installation

## APPLICATIONS

### 1. Active USB4 / USB-C Cable Coupling & Extension

FireNEX™-UDC-40G actively regenerates USB4/USB-C signals when joining two USB-C cables, enabling reliable USB4, USB 3.2 and DP Alt Mode, where passive couplers fail. This allows installers to extend high-performance USB-C connections while maintaining signal integrity required for high-speed data, video, and charging in professional AV and IT environments.

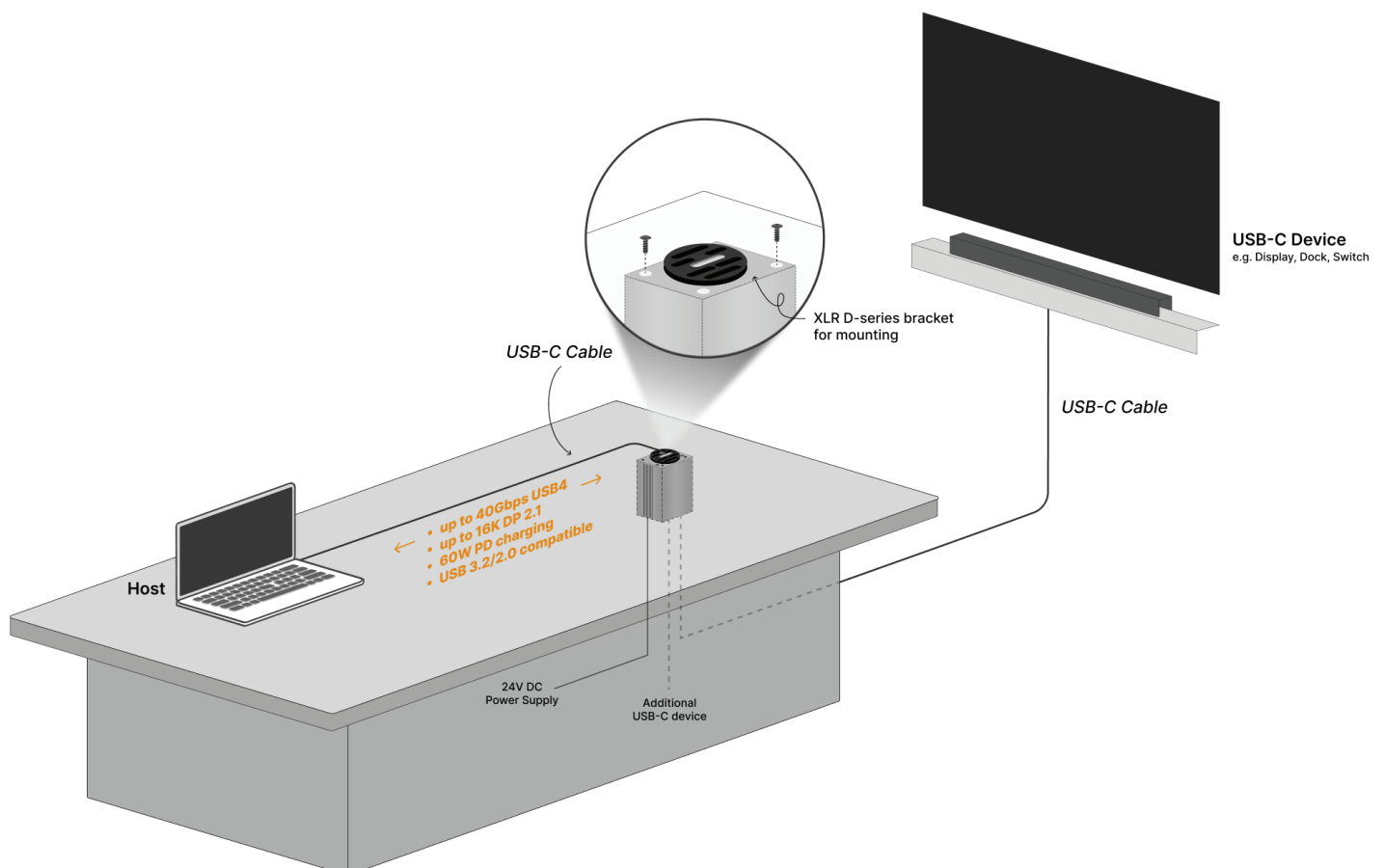
*\*For different data rates, the total length of connection varies. Below is the test result with Newnex USB4 cables. For example, for USB4 20Gbps, the total active cable length is up to 12 meters.*

Host Side Connection	Max Cable Length	Device Side Connection	Max Cable Length	Overall Length
<a href="#">Newnex Passive USB4 40Gbps Cable</a>	1 m (3.3 ft)	<a href="#">Newnex Passive USB4 40Gbps Cable</a>	1 m (3.3 ft)	2 m (6.6 ft)
<a href="#">Newnex Active USB4 40Gbps Cable</a>	4 m (13.1 ft)	<a href="#">Newnex Active USB4 40Gbps Cable</a>	4 m (13.1 ft)	8 m (26.2 ft)
<a href="#">Newnex Passive USB4 20Gbps Cable</a>	2 m (6.6 ft)	<a href="#">Newnex Passive USB4 20Gbps Cable</a>	2 m (6.6 ft)	4 m (13.1 ft)
<a href="#">Newnex Active USB4 20Gbps Cable</a>	6 m (19.7 ft)	<a href="#">Newnex Active USB4 20Gbps Cable</a>	6 m (19.7 ft)	12 m (39.4 ft)

### 2. Dual USB4 / USB-C Hub Switching Use Case

Besides the coupling and extension, FireNEX™-UDC-40G provides an additional downstream USB4 Type-C port for flexible device connection without compromising USB4 performance.

## APPLICATION DIAGRAM



# SPECIFICATIONS

## USB

USB4	40 Gbps
USB 3.2 Gen 2x2	20 Gbps
USB 3.2 Gen 2x1	10 Gbps
USB 3.2 Gen 1	5 Gbps
(AKA USB 3.1 Gen 1, USB 3.0)	
USB Hub Tier Count	480 Mbps

## Display

DP Alt Mode	Support
DP v2.1 (UHBR20 Source & Device)	Up to one 16K@60Hz, or 4K@240Hz
DP v1.4 (HBR3 Source & Device)	Up to one 8K@60Hz, or 4K@120Hz

## Thunderbolt

Thunderbolt 3	Host and Device Compatible
Thunderbolt 4	Host and Device Compatible
Thunderbolt 5	Host Compatible Only

## Charging to Host

Max Power Delivery	60W
Voltage Profiles	5V, 9V, 15V, 20V
Max Current	3A

## Mechanical

Panel Mount Style	Neutrik XLR D-Series
Upstream Port - Host	USB-C Female
Downstream Port - Device	2× USB-C Female

## Power Adapter

AC Power Plug Type	US
Power Input	100-240V AC, 50/60Hz, 0.8A
Power Output	24V DC, 3A
DC Power Connector	1.35 × 3.5 × 10mm, Center Positive

## Environmental

Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity	10% to 90% relative humidity, non-condensing

## Compliance and Compatibility

EMC	FCC, CE
Environment	RoHS, REACH

## Support

Warranty	1-year manufacturer warranty
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# PACKAGE CONTENTS

- FireNEX™-UDC-40G × 1
- 1m USB4 Type-C Cable × 1
- 19V DC Power Adapter × 1
- M3 Screws for Mounting × 2
- FireNEX™-UDC-40G User Guide × 1



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