

FireNEX™-CAT6-DP

USB-C Repeater over CAT with 4K Display

5Gbps USB 3.2, 4K Video, Ethernet, and 60W PD



OVERVIEW

FireNEXTM-CAT6-DP is an all-in-one USB-C extension system that delivers 5Gbps USB 3.2 data, 4K display video, audio, Gigabit Ethernet, and 60W PD charging—all over a single CAT 6a/7 cable up to 90 m (300 ft). Designed with BYOD meeting room settings, it simplifies connections for video bars, interactive displays, and collaboration systems, reducing cabling and installation costs.

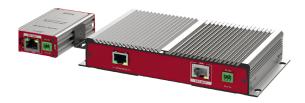
WHAT MAKES IT UNIQUE

Unlike other so-called BYOD extenders that only support USB 2.0 or only offer USB 3.0 data without DisplayPort (DP) alt mode, FireNEX™-CAT6-DP is the world's first BYOD extender that truly serves the purpose of BYOD via a complete set of USB-C features. It supports simultaneous 5Gbps data and 4K DisplayPort video, and its automatic DP Alt Mode lane switching ensures universal compatibility with USB-C devices that use either 2-lane or 4-lane configurations. The product also delivers robust USB Power Delivery (PD) up to 60W to host and 30W to device. In addition, it has a built-in Gigabit Ethernet port, so users get 4K DisplayPort video, audio, power, data, and network—everything with one single USB-C plug-in.

FEATURES

- All-in-One USB-C Extension with BYOD
 Extends full-feature USB-C—5Gbps data, 4K video, audio,
 Ethernet, and power—up to 90m over a single CAT 6a/7 cable
- 4K DisplayPort Alt Mode with Auto Switching
 Supports simultaneous video and data with automatic 2-lane
 / 4-lane DP Alt Mode switching, compatible with a wide range of USB-C devices
- SuperSpeed USB 3.2 Data Support
 Delivers 5Gbps USB 3.2 data, backward compatible with USB 2.0/1.1 devices
- Powerful USB Power Delivery
 Provides up to 60W charging to the host and up to 30W to connected devices, all over the same CAT cable

- Expanded Connectivity for Peripherals & Displays
 Two additional downstream USB-A 3.0 ports for high-speed peripherals, plus a DP++ port for a second 4K display (works with passive DP-to-HDMI adapters)
- Integrated Gigabit Ethernet
 Adds reliable 10/100/1000 Mbps wired networking through the USB-C connection—ideal for BYOD meeting rooms
- RS-232 Serial Pass-Through
 Enables bi-directional serial communication for AV control systems, industrial services, and automation workflows
- Broad OS Compatibility
 Works seamlessly with Windows, macOS, ChromeOS, Ubuntu, and Android





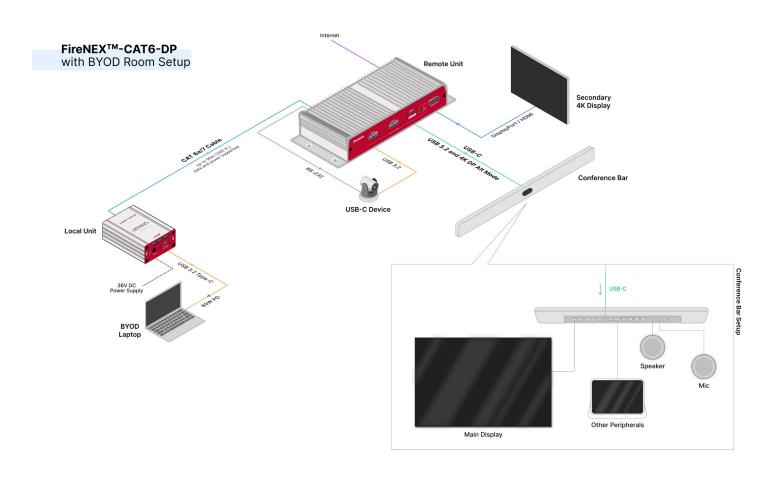
APPLICATIONS

- BYOD video conferencing
- Professional AV integration
- Full-feature USB-C extension
- Medical Imaging & Diagnostics
- Interactive Display Installations
- Machine Vision & Robotics

PACKAGE CONTENTS

- FireNEX-CAT6-DP Local Unit ×1
- FireNEX-CAT6-DP Remote Unit × 1
- 36V DC Power Adapter (US)* x 1
- 2m USB 3.2 C to C Cable × 2
- FireNEX-CAT6-DP User Guide × 1
- RS-232 Headers × 2

APPLICATION DIAGRAM



^{*}Switch the AC power cord for international users

SPECIFICATIONS

SPECIFICATIONS	
Range	
Max. Extension	90m (300 ft.)
USB	
USB 3.2 Gen 1 (USB 3.0)	5 Gb/s
USB 2.0/1.1	Backward Compatible
USB Transfer Type	Bulk / Isochronous / Control /
	Interrupt
USB Hub Tier Count	2

002	
Local Unit	
Dimensions (W x D x H)	77 x 45 x 21 mm
Enclosure Material	Anodized Aluminum
Upstream USB Port	1 × USB-C to Host with Locking
PD Profile	5V, 9V, 15V, 20V up to 60W
Link Connector	RJ45
Power Input	36V / 100W DC

Power Plug	2.1 x 5.5 x 10mm Center positive
Mated RS-232 Header	3-Pin Phoenix 1881338

Remote Unit	
Dimensions (W x D x H)	175 x 93 x 29 mm
Enclosure Material	Anondize Aluminum
Downstream USB Ports	
2 × USB-A	USB 3.2 Gen 1 (USB 3.0)
1 × USB-C	DP Alt Mode, USB 3.2 5Gbps, PD
PD Profiles	USB-A: 5V / 3A
	USB-C: 5V, 9V, 12V, 20V up to 27W
	*Total USB devices combined less than 27W
DisplayPort	Additional display up to 4K@60Hz

RJ45

Ethernet Port	10/100/1000 Base-T
Power Source	Power over CAT Cable
Mated RS-232 Header	3-Pin Phoenix 1881338

DisplayPort Alt Mode	
2 Lane – DP v1.2	Up to 4K@30Hz, or 2K@60Hz
(HBR2 Source & Device)	
4 Lane – DP v1.2	Up to 4K@60Hz
(HBR2 Source & Device)	

Integrated Audio

2-channel (stereo) and 5.1-channel

surround sound

Compatible CAT Cable	
Length	90m (300 ft.) max.
Туре	Shielded or Foiled Twisted Pair
• •	CAT 6a/7 cable (S/FTP or F/FTP)
	*Note: LITE cable can be used, the range is

	tested up to 30m
Wiring	T568A or T568B

Power Supply	
AC Power Plug Type	US (NEMA 5-15P)
	*Note: Switch the AC power cord for international regions
Power Input	100-240V AC, 50/60Hz
Power Output	36V / 100W DC

Operating System	
Compatible OS	Windows, macOS, ChromeOS,
	Ubuntu, and Android

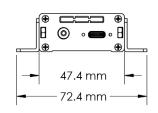
0°C to 50 °C (32°F to 122°F)
10% to 90% relative humidity, non-

	condensing
Compliance and Compatibility	
EMC	FCC, CE
Environment	RoHS 2 & 3, REACH

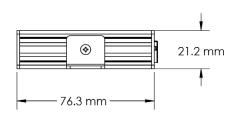
Support	
Warranty	1-year manufacturer warranty

PRODUCT DIMENSIONS

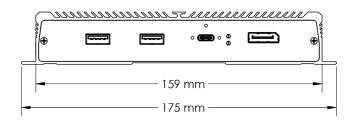
Link Connector

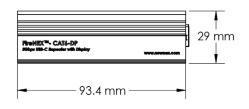


Local Unit



Remote Unit





FAQ

1. Does FireNEX[™]-CAT6-DP support DP Alt Mode?

Yes, FireNEX[™]-CAT6-DP supports USB-C DisplayPort Alt Mode and can extend video from compatible systems running Windows, macOS, ChromeOS, Ubuntu, and Android.

2. Does FireNEX™-CAT6-DP support 2-lane or 4-lane DP Alt Mode?

Yes, it supports both 2-lane and 4-lane DP Alt Mode with automatic switching, intelligently detecting the capabilities of the connected device.

3. How many USB hub tiers does FireNEX™-CAT6-DP consist of?

FireNEX™-CAT6-DP contains two USB hub tiers. Users should be aware of the requirement of maximum number of USB hub tiers allowed in the USB 3.0 standard when using with a PC system and other devices.

4. Is FireNEX™-CAT6-DP backward compatible with USB 2.0 and USB 1.1 peripherals?

Yes, it supports USB 2.0 and USB 1.1 devices, such as keyboards, mice, and touchscreens, over the CAT cable.

5. Does FireNEX™-CAT6-DP support isochronous USB data transfer?

Yes, it supports isochronous USB transfers, which are commonly used for real-time devices like webcams and audio interfaces.

6. Are the USB-C ports of FireNEX™-CAT6-DP flippable?

Yes, both the upstream and downstream USB-C ports support reversible plug orientation (flippable insertion).

7. Can I use UTP CAT6a cable with FireNEX™-CAT6-DP?

While you can use unshielded twisted pair (UTP) CAT6a, we recommend using shielded (S/FTP) CAT6a or CAT7 cable for optimal performance. Using a UTP cable may reduce range and increase the risk of signal interruptions in environments with electromagnetic interference (EMI).

8. Does FireNEX™-CAT6-DP require any drivers?

Yes, the FireNEXTM-CAT6-DP needs a driver to function properly. On Windows, the driver is typically downloaded and installed automatically. For further driver information, please refer to the user guide or contact us.

9. Does FireNEX™-CAT6-DP support HDCP (High-bandwidth Digital Content Protection)?

Yes, the FireNEX™-CAT6-DP supports HDCP 2.2, allowing it to transmit protected 4K content from compatible source devices to displays. This ensures compatibility with streaming services and media players that require HDCP 2.2 for 4K UHD video playback.

