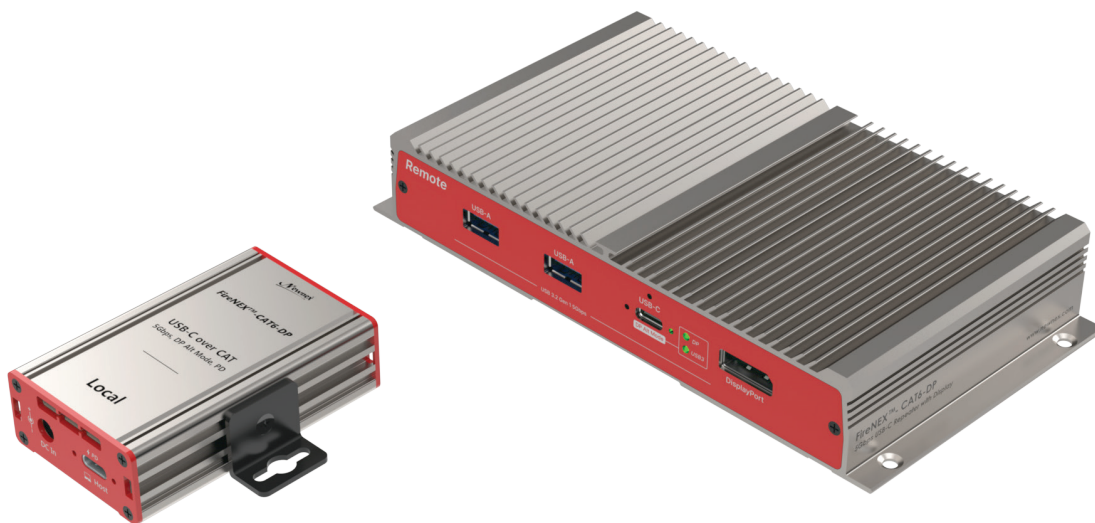


FireNEX™-CAT6-DP

USB-C Repeater over CAT with 4K Display

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



OVERVIEW

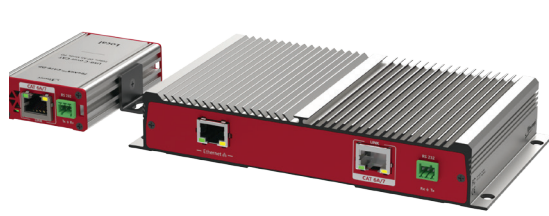
FireNEX™-CAT6-DP is an all-in-one USB-C extension system that delivers 5Gbps USB 3.2 data, 4K display video, audio, Gigabit Ethernet, and 60W PD charging—all over a single CAT 6a/7 cable up to 90 m (300 ft). Designed with BYOD meeting room settings, it simplifies connections for video bars, interactive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

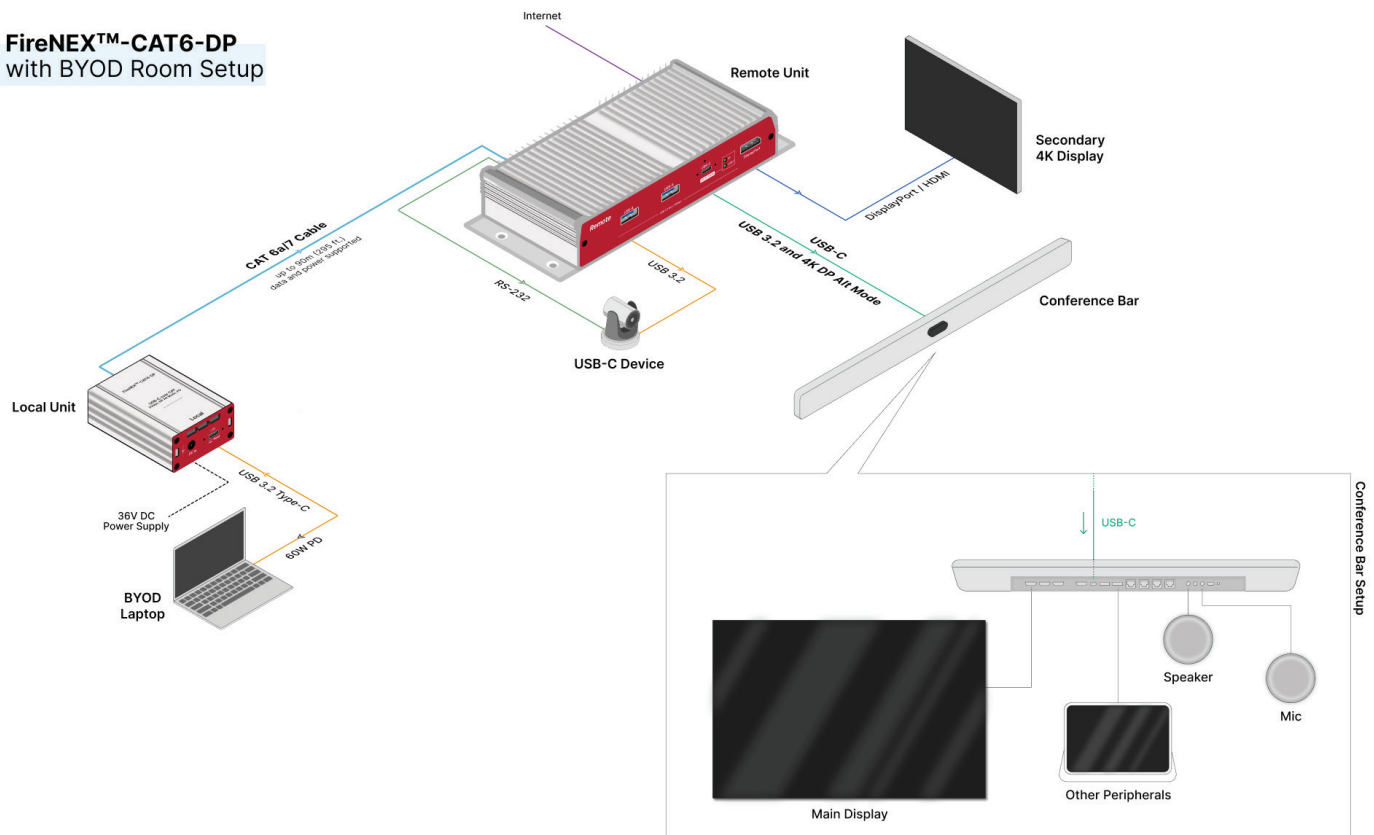
PACKAGE CONTENTS

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

*Switch the AC power cord for international users

APPLICATION DIAGRAM

FireNEX™-CAT6-DP with BYOD Room Setup



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

Local Unit

Dimensions (W x D x H) 77 x 45 x 21 mm
 Weight 94g
 Enclosure Material Anodized Aluminum
 Upstream USB Port 1 x 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
 Weight 379g
 Enclosure Material Anodize Aluminum
 Downstream USB Ports
 2 x USB-A USB 3.2 Gen 1 (USB 3.0)
 1 x 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
 Link Connector 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.
 Type Shielded or Foiled Twisted Pair
 CAT 6a/7 cable (S/FTP or F/FTP)
 *Note: UTP 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

Environmental

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

Compliance and Compatibility

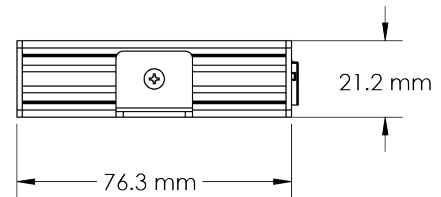
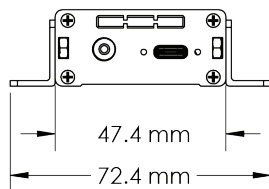
EMC FCC, CE
 Environment RoHS 2 & 3, REACH

Support

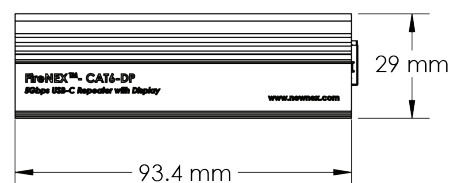
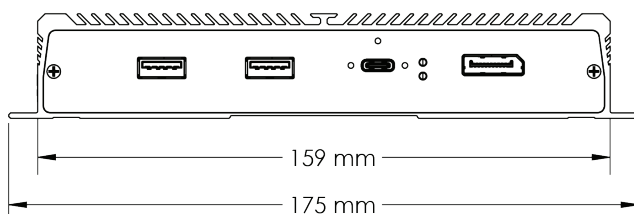
Warranty 1-year manufacturer warranty

PRODUCT DIMENSIONS

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 FireNEX™-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.