

# FireNEX™-U4F20G-C

## 20Gbps USB-C Fiber Repeater



### OVERVIEW

FireNEX™-U4F20G-C is a high-performance USB4 fiber optic repeater designed for long-distance connectivity. For hosts equipped with USB4 or Thunderbolt™ USB-C ports, it transmits USB-C signals over optical fiber—ensuring EMI-free operation—to a Remote Unit featuring a 20Gbps USB 3.2 Gen 2x2 Type-C port. With superior signal integrity, it extends connections up to 700 m at USB 3.2 Gen 1 (5Gbps) and 300 m at USB 3.2 Gen 2x2 (20Gbps)—far exceeding the typical limit of USB-C passive cables.

The Remote Unit provides up to 30W Power Delivery, enabling direct connection to high-performance devices with a single cable for both data and power. On the host side, the Local Unit USB-C (upstream) port supports hot-plug operation for seamless reconnection without system reboot—even if the fiber link is interrupted or the Remote Unit loses power.

Fully compatible with native USB drivers across Windows, macOS, and Linux, the FireNEX™-U4F20G-C is backward compatible with USB 3.0, 2.0, and 1.1 devices as well, making it ideal for demanding applications such as industrial automation, machine vision, medical imaging, scientific research, and Pro AV.

### FEATURES

- USB Fiber Repeater**  
 Extends USB data over single-mode fiber with up to 20Gbps aggregate bandwidth
- Long-distance Extension**  
 Supports up to 700 m for USB 3.2 Gen 1 (5Gbps) and 300 m for USB 3.2 Gen 2x2 (20Gbps)
- 20Gbps Downstream USB-C Port, Supports 30W USB PD**  
 Remote Unit's USB-C port supports up to USB 3.2 Gen 2x2 (20Gbps) and 30W USB Bus Power Delivery (PD)
- Legacy Device Support**  
 Fully backward compatible with USB 3.0 and USB 2.0/1.1 peripherals
- Broad Host Support**  
 Compatible with USB4 and Thunderbolt hosts with hot plug-and-play support
- Hot-Plug Ready**  
 Maintains system stability when the fiber link is disconnected or the remote unit powers off
- Universal OS Compatibility**  
 Works seamlessly with Windows, macOS, and Ubuntu using standard system drivers
- High Signal Integrity**  
 Ensures minimal signal degradation and strong EMI immunity

# PRODUCT IMAGES



[Remote Unit] Front



[Remote Unit] Back

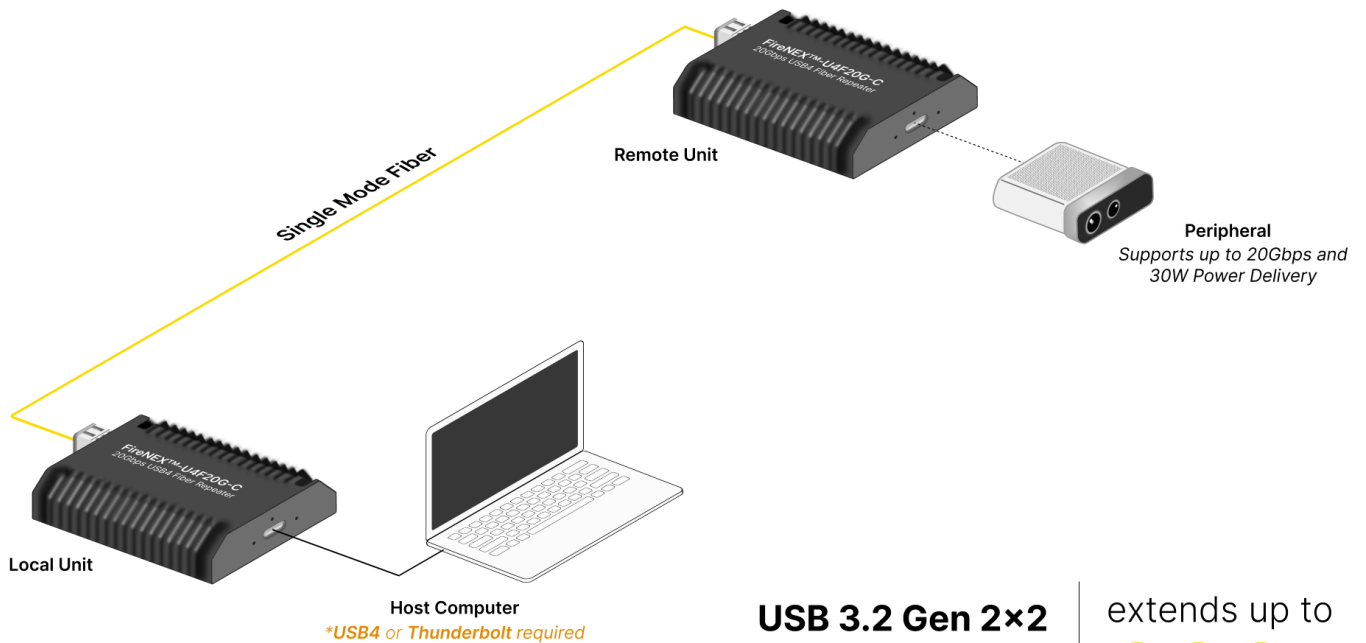


[Local Unit] Front



[Local Unit] Back

## APPLICATION DIAGRAM



USB 3.2 Gen 2x2  
**20Gbps**

extends up to  
**300m**

## SPECIFICATIONS

### Extension Range

USB 3.2 Gen 2x2, 20Gbps	Up to 300 m
USB 3.2 Gen 1, 5Gbps (USB 3.0)	Up to 700 m

### Host Compatibility

USB4	Yes
Thunderbolt	Thunderbolt 3, 4, 5

### Local Unit

Dimensions (W x D x H)	60 x 85 x 21 mm (2.4 x 3.3 x 0.8")
Weight	141 g
Enclosure Material	Aluminum Alloy
Upstream USB Port	USB-C, Locking
Optical Connector	Duplex LC
Power Input	12V DC, 2.5A
DC Power Jack	2.1 x 5.5 x 10 mm center positive

### Remote Unit

Dimensions (W x D x H)	60 x 85 x 21 mm (2.4 x 3.3 x 0.8")
Weight	146 g
Enclosure Material	Aluminum Alloy
Downstream USB Port	1x USB-C Port (20Gbps), Locking
USB PD Support (Max.)	5V/3A, 9V/3A, 15V/2A, 20V/1.5A
Optical Connector	1x Duplex LC
Power Input	12V DC, 2.5A
DC Power Jack	2.1 x 5.5 x 10 mm center positive

### Environmental

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

### Fiber Cable

Connector	LC-LC Duplex
Type	Single mode 9/125 OS2, A/B wiring

### Power Adapter

AC Power Plug Type	US/EU/UK/CN
Power Input	100-240V AC, 50/60Hz, 0.8A
Power Output	12V DC, 2.5A

### Compliance

Machine Vision	USB3 Vision® Compliant
EMC	FCC, CE
Environment	RoHS
Laser Safety	IEC 60825-1 Class 1/CDRH Class 1 layer eye safe

### Support

Warranty	1-year manufacturer warranty
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## PACKAGE CONTENTS

- FireNEX™-U4F20G-C Local Unit × 1
- FireNEX™-U4F20G-C Remote Unit × 1
- 1m USB4 Type-C Cable × 1
- 12V DC Power Supply × 2
- FireNEX™-U4F20G-C User Guide × 1

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FireNEX™-U4F20G-C Datasheet Rev 1.0

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