

FireNEX™-U4F20G

20Gbps USB Fiber Repeater up to 700m



OVERVIEW

FireNEX™-U4F20G is an innovative USB fiber optical repeater for long-distance range with high performance. For hosts with a USB4 or Thunderbolt USB-C port, it transports the USB signal via optical transmission (EMI free) to the Remote Unit that has two USB 3.2 Gen 2 Type-A ports, each supporting up to 10Gbps data rate.

With its excellent signal integrity, FireNEX™-U4F20G extends the connection distances up to 700m for USB 3.2 Gen 1 (5Gbps) and 300m for USB 3.2 Gen 2 (10Gbps), far exceeding the typical USB4 passive copper cable limits that are normally less than 2 meters. The Local Unit USB-C port (upstream) supports hot-plug operation, avoiding system reboots if the fiber link disconnects or the Remote (downstream) Unit powers off.

The FireNEX™-U4F20G operates with native USB drivers on Windows, macOS, and Linux and remains backward compatible with USB 3.0 and 2.0/1.1 devices. Being fully compatible with USB4 and Thunderbolt hosts, it is ideal for a variety of professional 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 700m for USB 3.2 Gen 1 (5Gbps) and 300m for USB 3.2 Gen 2 (10Gbps)
- Two Downstream USB Ports**
 Provides 2× USB 3.2 Gen 2 (10Gbps) ports for device connectivity
- 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

ADDITIONAL PRODUCT IMAGES



[Local Unit] Front



[Local Unit] Back



[Remote Unit] Front

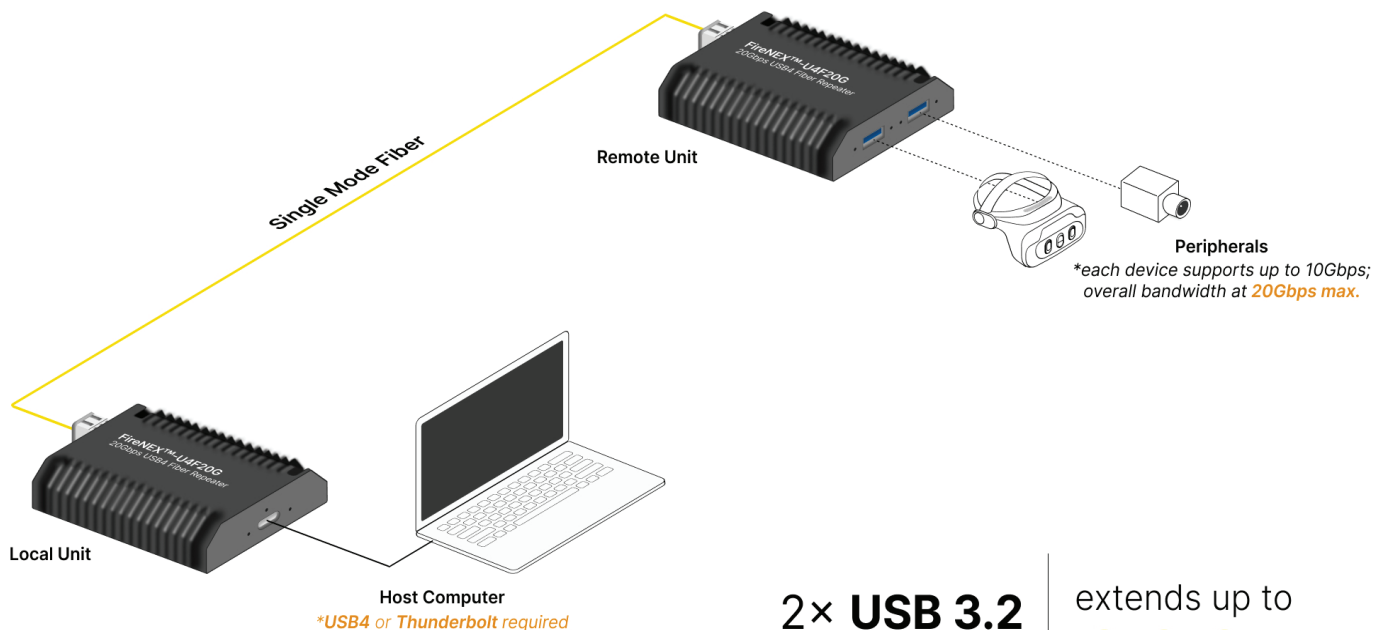


[Remote Unit] Back

PACKAGE CONTENTS

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

APPLICATION DIAGRAM



**2 × USB 3.2
Gen 2 10Gbps**

extends up to
300m

SPECIFICATIONS

Extension Range

USB 3.2 10Gbps	Up to 300 m
USB 3.2 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
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
USB Connector	2x USB-A Port (10Gbps)
USB Power Out	5V/1.5A of each USB port
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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FireNEX™-U4F20G Datasheet Rev 1.0

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