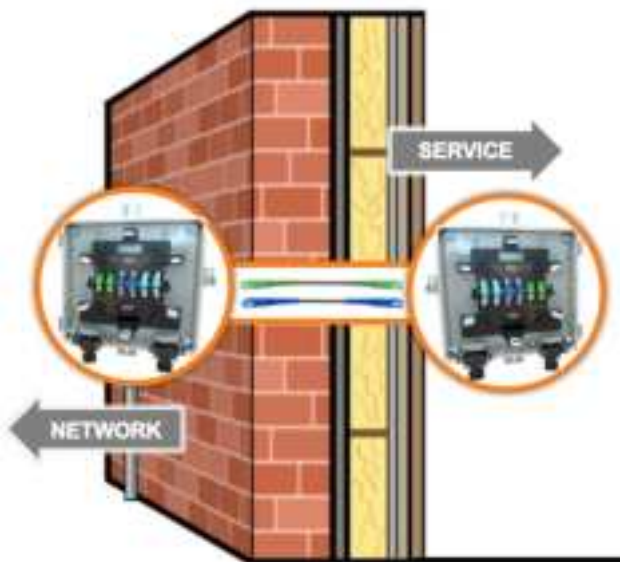


Hybrid FTTx + Networking Kit



FTTx-K20
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Version 1.0.2

Introduction

The FTTX-K20 kit from LightSpeed Technologies® is an affordable, easy-to-install package that streamlines fiber-to-the-home and business. The kit includes two enclosures designed to simultaneously route and manage broadband, network, and/or audio-visual fiber connections from an outdoor location to an indoor demarcation point.

Unlike other demarcation wiring systems that are specific to broadband, networking or audio/video, the FTTX-K20 includes innovative hybrid panels that manage single mode SC/APC connections (typically broadband), single mode LC connections (typically long-range networking and AV), and multimode LC connections (typically short-range networking and AV) in a single enclosure. For added versatility, the FTTX-K20 hybrid panel system is also swappable and conforms to LGX standards, allowing integrators to quickly and easily customize fiber optic connections using off-the-shelf components.

Installing the FTTX-K20 system is easy: simply mount the outdoor enclosure, mount the indoor enclosure, run and connect a compatible fiber optic cable between the two enclosures, and plug-in the broadband, networking, and/or audio-visual equipment. If needed, LightSpeed Technologies® offers a variety of factory-terminated fiber optic cables built in various lengths and configurations. A fully populated FTTX-K20 enclosure requires ten strands of fiber in the following cable configuration:

Connection	Cable Type	Indoor Enclosure Connector	Outdoor Enclosure Connector	Typical Use
Cable 1	Single Mode	SC/APC	SC/APC	Broadband
Cable 2	Single Mode	SC/APC	SC/APC	Broadband
Cable 3	Single Mode	LC/UPC (standard LC)	LC/UPC (standard LC)	Networking & AV
Cable 4	Single Mode	LC/UPC (standard LC)	LC/UPC (standard LC)	Networking & AV
Cable 5	Single Mode	LC/UPC (standard LC)	LC/UPC (standard LC)	Networking & AV
Cable 6	Single Mode	LC/UPC (standard LC)	LC/UPC (standard LC)	Networking & AV
Cable 7	Multimode	LC/UPC (standard LC)	LC/UPC (standard LC)	Networking & AV
Cable 8	Multimode	LC/UPC (standard LC)	LC/UPC (standard LC)	Networking & AV
Cable 9	Multimode	LC/UPC (standard LC)	LC/UPC (standard LC)	Networking & AV
Cable 10	Multimode	LC/UPC (standard LC)	LC/UPC (standard LC)	Networking & AV

* LightSpeed Technologies® recommends adding at least 10 feet of extra cable length to all interconnect cables.

To future-proof installations, both the outdoor and indoor FTTX-K20 enclosures feature built-in cable management, cable coiling, and multiple entry and exit points to accommodate extra fiber optic cable for service loops, repairs and retrofits.

The FTTX-K20 kit is ideal for residential and commercial installations where affordable, quick, consistent, reliable, and aesthetically pleasing fiber optic connections are required.

Features

- FTTx demarcation wiring package including two enclosures with hybrid LGX panels
- Ideal for routing broadband, networking and/or audio-visual fiber-based signals between indoor and outdoor locations
- Included enclosures feature two simplex single mode SC/APC, two duplex single mode LC and two duplex multimode LC connections
- Hybrid LGX panels are swappable and follow industry standards, allowing for quick customizations in the field
- Enclosures are outdoor-rated for exposure to water and UV
- Enclosures feature cable management and multiple entry / exit points supporting conduit connections up to 1 inch in diameter

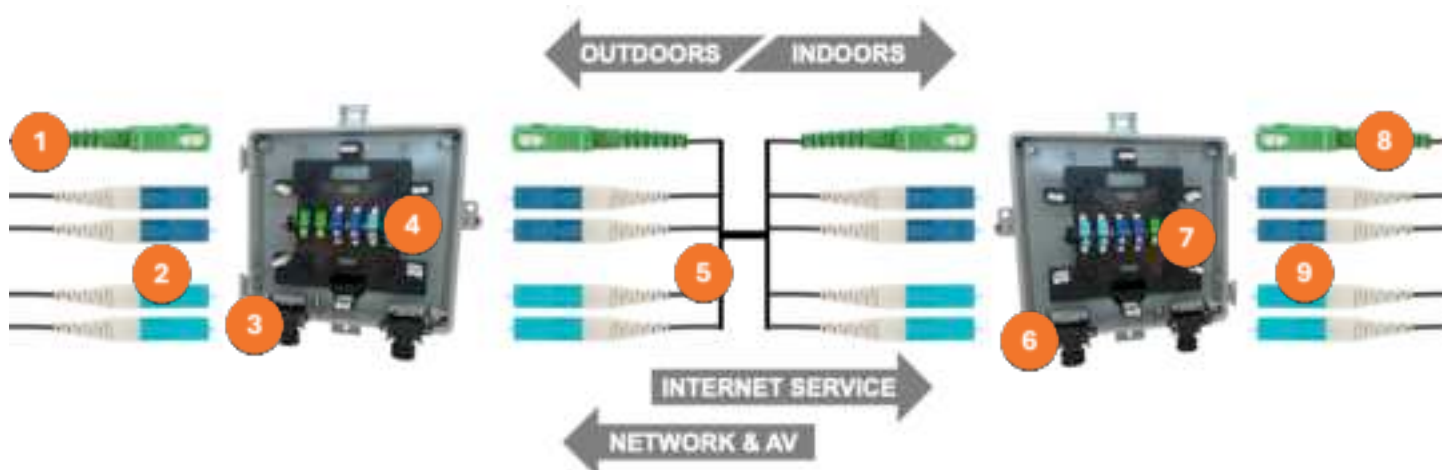
Package Contents

- 1 x factory-loaded outdoor enclosure
 - 1 x hybrid LGX panel
 - 2 x simplex single mode SC/APC
 - 2 x duplex single mode LC
 - 2 x duplex multimode LC
 - 1 x copper ground lug
- 1 x factory-loaded indoor enclosure
 - 1 x hybrid LGX panel
 - 2 x simplex single mode SC/APC
 - 2 x duplex single mode LC
 - 2 x duplex multimode LC
 - 1 x copper ground lug

Installation Best Practices & Requirements

- Ensure any fiber optic interconnect cable conforms to environmental standards. For example, a cable that will be exposed water and/or UV should have an outdoor rating, whereas a cable that will be buried directly in soil should have a direct burial rating.
- Ensure the minimum bend radius of the fiber optic cable does not exceed manufacturer's specifications.
- When pulling and fishing the fiber optic cable, do not exceed the manufacturer's pull-strength rating (typically 50lbs or less).
- Additionally, do not pull the fiber optic cable by the connector assembly – always pull the cable using a pull eye affixed to the cable jacket.
- Mount the outdoor enclosure in a location where the temperature will not exceed a -40°F minimum temperature or a 176°F maximum temperature.
- When integrating a fiber optic cable with a conductive ground member (such as a toneable drop cable or direct burial service cable), terminate the cable ground member to the outdoor enclosure ground lug following local building codes and requirements.
- Keep factory dust caps installed on all connectors, couplers, adapters and other fiber optic ports until making the final connection. Fiber-based systems rely on optical light waves and optical lenses, and dirty connections will significantly affect signal performance.
- If the optical lenses on connectors or ports become dirty or contaminated, or if the installed system signal performance is weak, clean the connector and port optical lenses using fiber alcohol wipes and/or pen-style fiber optic cleaners.
- Optical equipment uses high-power non-visible light and can damage your vision and/or non-compatible optical instruments. **Never look directly into an optical port or into an optical connector.**





- 1 Service Provider Cable Feed** (contractor provided)
Incoming service feed.
- 2 Remote Network and/or AV Feed** (contractor provided)
Outgoing network and/or audio-visual feeds.
- 3 Outdoor Enclosure**
Weather-rated enclosure connects and protects the incoming service feed and outgoing network and AV feeds while providing cable management and multiple secure cable entry and exit points.
- 4 Hybrid LGX Panel**
Hybrid LGX panel with connectivity for two simplex single mode SC/APC, two duplex single mode LC and two duplex multimode LC connections.
- 5 Trunk Cable** (contractor provided)
Fiber optic trunk cable connecting the outdoor enclosure to the indoor enclosure.
- 6 Indoor Enclosure**
Indoor enclosure connects and protects the incoming service feed and outgoing network and AV feeds while providing cable management and multiple secure cable entry and exit points.
- 7 Hybrid LGX Panel**
Hybrid LGX panel with connectivity for two simplex single mode SC/APC, two duplex single mode LC and two duplex multimode LC connections.
- 8 ONT Cable Feed** (contractor provided)
Connection to the optical network terminal (modem).
- 9 Network/or and AV Cable Feed** (contractor provided)
Connection to the network switch, media converters, HDMI over fiber optic extenders and/or other signal distribution electronics.

Specifications

Kit Information	
Part Number	FTTX-K20
Contents	1 x factory-loaded outdoor enclosure 1 x hybrid LGX panel 2 x simplex single mode SC/APC 2 x duplex single mode LC 2 x duplex multimode LC 1 x copper ground lug 1 x factory-loaded indoor enclosure 1 x hybrid LGX panel 2 x simplex single mode SC/APC 2 x duplex single mode LC 2 x duplex multimode LC 1 x copper ground lug

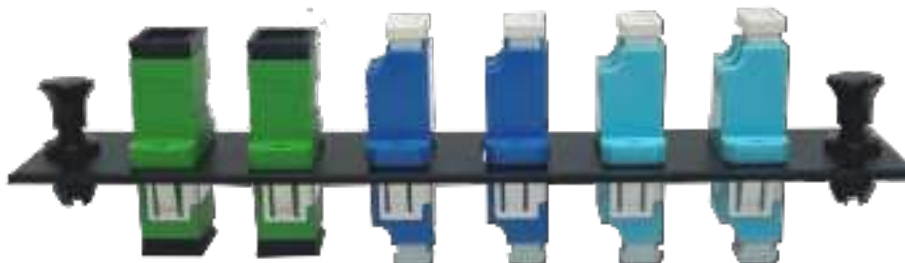


Outdoor Enclosure with Hybrid LGX Panel	
Dimensions	x 8.7 x 2.8in (261 x 222 x 73mm)
Material	PC and ABS outdoor-rated plastic
Color	Light gray
Input / Output Conduit Support	2 x up to 1in conduit
Input / Output Cable Support	2 x gasketed round entries accommodating from 0.12 to 0.63in (3.0 to 16.2mm) 2 x gasketed flat drop entries accommodating from 0.7 to 0.3 x 0.2in (2.0 to 8.1 x 4.5mm) 2 x variable size entry clamp
Grounding	Electrical copper ground lug
Temperature	-40°F to 176°F (-40°C to 80°C)
Relative Humidity	≤ 85%
Environmental Rating	GR-771 outdoor-rated for weather and UV exposure
Security	3/8" hex bolt with support for security seal
Panel Insert Format	LGX standard
Panel Insert Connections	2 x simplex single mode SC/APC 2 x duplex single mode LC/UPC 2 x duplex multimode LC/UPC
Panel Insert Total Fiber Capacity	10 strands (6 x single mode and 4 x multimode)
Panel Material	16-gauge steel with black powder coating
Panel Insertion Loss	0.03 – 0.01dB
Panel Durability	> 500 mating cycles



Indoor Enclosure with Hybrid LGX Panel

Dimensions	10.2 x 8.7 x 2.8in (261 x 222 x 73mm)
Material	PC and ABS outdoor-rated plastic
Color	Light gray
Input / Output Conduit Support	2 x up to 1in conduit
Input / Output Cable Support	2 x gasketed round entries accommodating from 0.12 to 0.63in (3.0 to 16.2mm) 2 x gasketed flat drop entries accommodating from 0.7 to 0.3 x 0.2in (2.0 to 8.1 x 4.5mm) 2 x variable size entry clamp
Grounding	Electrical copper ground lug
Temperature	-40°F to 176°F (-40°C to 80°C)
Relative Humidity	≤ 85%
Environmental Rating	GR-771 outdoor-rated for weather and UV exposure
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Hybrid Panel Insert