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LIGHTSPEED Technologies K30 FTTX Kit for Active Electronics Instruction Manual

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K30 FTTX Kit for Active Electronics

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FTTX-K30
Hybrid FTTx + Networking Kit
Version 1.0.0
Installation & Specification Guide

PN-ME652 Series Lcd Monitor

⚠️ **WARNING**

THIS SYSTEM FEATURES OPTIONAL HIGH-VOLTAGE POWER AND IS DESIGNED TO BE INSTALLED BY A TRAINED PROFESSIONAL. FOR YOUR SAFETY, PLEASE REVIEW THIS ENTIRE GUIDE PRIOR TO INSTALLATION AND FOLLOW ALL DIRECTIONS.

Introduction

The FTTX-K30 kit from LightSpeed Technologies® is an affordable, easy-to-install package that streamlines fiber-to-the-home and business. The kit includes two enclosures – one passive (nonpowered) and one active (powered) – designed to simultaneously route and manage broadband, network, and/or audio-visual fiber connections from an outdoor location to an indoor demarcation point or, alternatively, between two outdoor locations. For added versatility, the FTTX-K30 active enclosure features power outlets for installed devices, environmental temperature control, and an oversized mounting panel. The FTTX-K30 kit is an ideal solution for securing, connecting, and managing fiber-based electronics.

Unlike other demarcation wiring systems that are specific to broadband, networking or audio/video, the FTTX-K30 kit 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-K30 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-K30 system is easy: simply mount the passive enclosure, mount and connect power to the ACTIVE 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-K30 enclosure requires ten strands of fiber in the following cable configuration:

Connection Cable 1	Cable Type	Indoor Enclosure Connector	Outdoor Enclosure Connector	Typical Use
Cable 2	Single Mode	SC/APC	SC/APC	Broadband
Cable 3	Single Mode	SC/APC	SC/APC	Broadband
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	Single Mode	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
	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 active and passive FTTX-K30 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-K30 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 (one active and one passive) with hybrid LGX panels
- Ideal for routing broadband, networking and/or audio-visual fiber-based signals between indoor and outdoor

locations or between two 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
- Passive (non-powered) enclosure features:
    - Outdoor rating for exposure to water and UV
    - Built-in cable management
    - Multiple entry / exit points supporting conduit connections up to 1 inch in diameter
    - Copper electrical ground lug
    - Secure door latching with 3/8-inch hex bolt
- Active (powered) enclosure features:
    - Enhanced NEMA Type 3R outdoor rating for exposure to water and UV
    - 10.9 x 12.8-inch internal aluminum mounting plate for cable management and securing electronics
    - Four factory-installed 120VAC outlets with removable 120VAC terminal block
    - Two 4-inch vents with rain shields and screens
    - Built-in thermostat-controlled cooling fan
    - Multiple entry / exit points with cable glands
    - Copper electrical ground lug
    - Two stainless steel hinges with quick-release latches and padlock hasps

LIGHTSPEED Technologies K30 FTTX Kit for Active Electronics - Features 1

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

⚠️**WARNING**
THIS SYSTEM FEATURES OPTIONAL HIGH-VOLTAGE POWER AND IS DESIGNED TO BE INSTALLED BY A TRAINED PROFESSIONAL. FOR YOUR SAFETY, FOLLOW ALL INSTALLATION DIRECTIONS.

Electrical & Environmental

- If power is required, mount the active enclosure in a location near a power source and connect all power and grounding in accordance with National Electrical Codes (NEC) and any local building codes.

  WARNING: TO AVOID ELECTRIC SHOCK, GROUNDING MUST BE INSTALLED AS PART OF THE INSTALLATION. NOTE THAT THE NON-METALLIC CONSTRUCTION OF THE ENCLOSURE DOES NOT PROVIDE GROUNDING BETWEEN THE CONDUIT CONNECTIONS.

  WARNING: INSTALLATION OF THIS PRODUCT NEAR POWERLINES IS DANGEROUS. UNDER SOME CONDITIONS, THIS ENCLOSURE MAY NOT PREVENT ELECTROCUTION. USERS SHOULD KEEP THE ENCLOSURE AWAY FROM OVERHEAD WIRES. IF THE ENCLOSURE CONTACTS A POWER LINE, ANY INITIAL PROTECTION COULD FAIL AT ANY TIME. WHEN CONTACTING AN OVERHEAD POWERLINE, IMMEDIATELY RELEASE THE ENCLOSURE, STAY AWAY, AND CONTACT THE UTILITY COMPANY.

  WARNING: IF INSTALLING THE ACTIVE ENCLOSURE ON A ROOF, DO NOT ASSUME YOU ARE ISOLATED FROM GROUND. IF THE INSTALLATION REQUIRES USE OF A LADDER, UTILIZE A LADDER CONSTRUCTED OF NON-CONDUCTIVE (NON-METALLIC) MATERIAL.

  WARNING: THE ACTIVE ENCLOSURE MUST BE SECURED WHEN ENERGIZED TO PREVENT UNAUTHORIZED ACCESS AND SHOCK HAZARD. Enclosures improperly

  installed or installed to an inadequate structure are susceptible to wind damage that can be extremely serious or life threatening. Ensure the enclosure is properly secured and structurally sound to support all loads, including the weight of the contents and the weight of environmental accumulation, including snow and ice.

- When installing or troubleshooting power connections, NEVER WORK ALONE. Always have someone near who can summon help. Additionally, check weather conditions to ensure precipitation is not predicted during the installation and ensure the installation area is not slippery or hazardous.

- 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.

- Mount the passive enclosure in a location where the temperature will not exceed a -40°F minimum temperature or a 176°F maximum temperature.

- If power is connected to the active enclosure, the built-in cooling fan will automatically turn-on when temperatures exceed 100°F and automatically turn-off when temperatures drop below 79°F. POWER MUST BE CONNECTED FOR THE COOLING FAN TO OPERATE. LightSpeed Technologies® is not responsible for and does not warrant any devices, electronics or active or passive components installed within the enclosure.

- The active enclosure includes mounting brackets designed to secure the enclosure to a flat surface. If mounting the active enclosure to a pole or other non-flat surface, please contact LightSpeed Technologies® for optional pole and flange mounting hardware.

LIGHTSPEED Technologies K30 FTTX Kit for Active Electronics - Installation Best Practices And Requirements 1

Fiber Optic

- 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.
- 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 noncompatible optical instruments. Never look directly into an optical port or into an optical connector.

⚠ DANGER ⚠
NEVER LOOK DIRECTLY AT LASER LIGHTS, PORTS OR CONNECTORS

Typical Application Diagram

1. **Service Provider Cable Feed** (contractor provided)
   Incoming service feed.
2. **Remote Fiber Optic Network and/or AV Feed** (contractor provided)
   Outgoing fiber optic network and/or audio-visual feeds.
3. **Remote Twisted Pair Network and/or AV Feed** (contractor provided)
   Outgoing twisted pair network and/or audio-visual feeds. Requires integration with a network switch and/or media converter (sold separately).
4. **Active Enclosure**
   Weather-rated enclosure connects and protects the incoming service feed and outgoing network and AV feeds while providing power and mounting for devices, cable management and multiple secure cable entry / exit points.
5. **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.
6. **Trunk Cable** (contractor provided)
   Fiber optic trunk cable connecting the active enclosure to the passive enclosure.
7. **Passive Enclosure**
   Passive enclosure connects and protects the incoming service feed and outgoing network and AV feeds while providing cable management and multiple secure cable entry / exit points.
8. **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.
9. **ONT Cable Feed** (contractor provided)
   Connection to the optical network terminal (modem).
10. **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.

Kit Information

Part Number	FTTX-K30

Contents	1 x factory-loaded passive (non-powered) 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 active (powered) enclosure
	
	• 1 x hybrid LGX panel
	    ◦ 2 x simplex single mode SC/APC
	    ◦ 2 x duplex single mode LC
	    ◦ 2 x duplex multimode LC
	• 3 x cable glands
	• 2 x removable air filters
	• 4 x stainless steel mounting feet
	• 1 x 120VAC power terminal block
	• 1 x copper ground lug

LIGHTSPEED Technologies K30 FTTX Kit for Active Electronics - Kit Information 1

Active Enclosure with Hybrid LGX Panel

Outer Dimensions	15.7 x 13.8 x 8.0in (401 x 352 x 205mm)
Inner Dimensions	13.0 x 11.0 x 2.7in (330 x 279 x 69mm)
Mounting Plate Dimensions	10.9 x 12.8in (276 x 324mm)
Enclosure Material	Fiberglass reinforced polyester
Mounting Plate Material	0.1in (2.5mm) thick aluminum
Color	Light gray
Unloaded Weight	12.0lbs (5.4kg)
Input / Output Cable Support	3 x cable glands
Voltage	120VAC
Max Load	15A @ 120VAC
Internal Electrical Connections	4 x factory-wired power outlets and a terminal strip
Electrical Terminal Block Wire Range	12 – 18 AWG
Electrical Terminal Block Strip Length	0.2 – 0.3in (6 – 7mm)
Environmental Control	1 x factory-installed cooling fan
Cooling Fan Turn-On Temperature	100°F (38°C)
Cooling Fan Turn-Off Temperature	79°F (26°C)
Enclosure Environmental Rating	NEMA Type 3R, 3RX / IP24
Enclosure Flame Rating	UL94-5V
Security	2 x stainless steel hinges with quick release latches and padlock hasps
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

*Custom enclosure environmental and mounting options available. Please contact the factory for additional information.

LIGHTSPEED Technologies K30 FTTX Kit for Active Electronics - Kit Information 2

Available exclusively from Future Ready Solutions

Documents / Resources

	LIGHTSPEED Technologies K30 FTTX Kit for Active Electronics [pdf] Instruction Manual K30, K30 FTTX Kit for Active Electronics, FTTX Kit for Active Electronics, Active Electronics, Electronics

References

- **⊘ LightSpeed Technologies® - Future Ready Solutions**
- **User Manual**