



**Electro Standards Laboratories**  
ADVANCED SYSTEMS DESIGN & SERVICES

## SPECIFICATIONS

Host, Desktop Unit... Model 4162 (Cat No. 304162)  
Host, DIN Rail Mounted Unit... Model 4162-DIN (Cat No. 304162-DIN)  
4-Port USB Hub, Desktop Unit... Model 4169 (Cat No. 304169)  
4-Port USB Hub, DIN Rail Mounted Unit... Model 4169-DIN (Cat No. 304169-DIN)  
Included USB A-B Cable, 6 ft.... (Cat No. 507366)

## High Speed Ruggedized LC Fiber-to-USB Converter/Extender, Host & 4-Port USB Hub

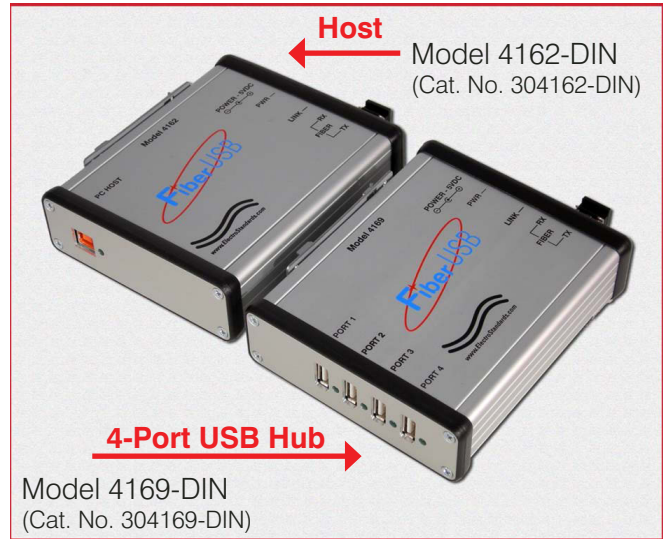
- Simultaneously connect up to four USB Interface Devices to your desktop PC or notebook.
- High speed connection to distant USB devices over multimode fiber optic cable.

### INTRODUCTION

The Desktop Units, Models 4162 and 4169, or the DIN Rail Mounted units, Models 4162-DIN and 4169-DIN, comprise, a Host and a Four Port USB Wired Hub that extend USB connections up to 500 meters via a high speed LC Fiber interface.

### FEATURES:

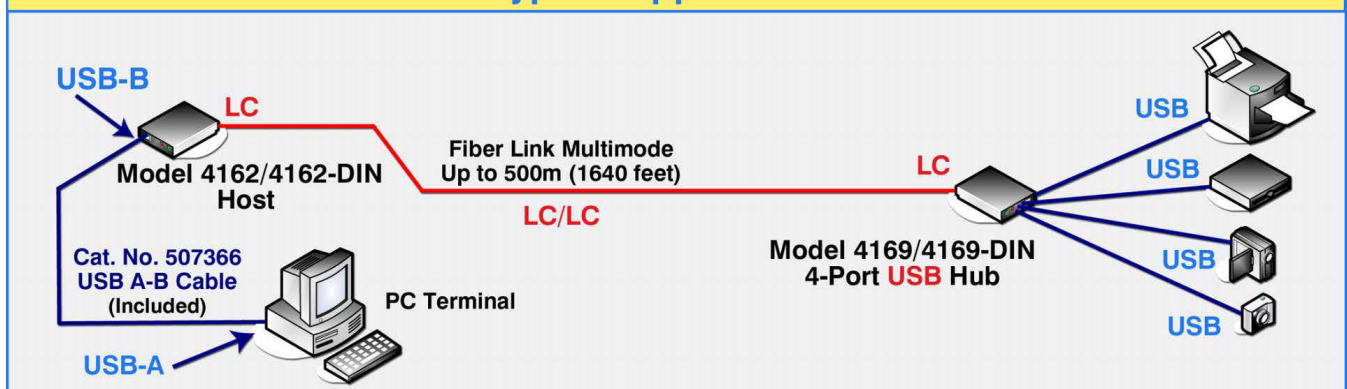
- Convert USB 2.0 compliant data from a standard PC Host interface, Model 4162, over fiber to a remote 4-port powered USB Hub, Model 4169.
- Ideal for applications involving PC communication that require high speed, secure communication, and optical isolation.
- Extend USB communication in environments that are subject to high EM or RF interference that might corrupt communication over a copper interface.
- Typical applications include industrial control, KVM extension, remote desktop USB connections, and remote USB device sharing such as printers, scanners and storage devices.
- Units offer true plug and play operability with support for Windows®, Mac OS®, Linux®, and support all USB device types: Control, Interrupt, Bulk and Isochronous up to 480 Mbps.
- Designed to operate from -0 degree C to +50 degree C (component ratings meet or exceed 0° C to 70° C).
- **Ruggedized against shock and vibration.**
- Units feature ESD protection circuitry on all copper USB I/O interfaces.
- Power inputs are protected from transients and the 4-port USB Hub provides the USB standard of 500mA per port.
- LEDs display Power, Fiber Link Active, Host Active (Model 4162, 4162-DIN) and Port Active (Model 4169, 4169-DIN) indicator LEDs.



### Two configurations are available for each model:

1. **Model 4162** Host Desktop Unit, for applications requiring an enclosure.
2. **Model 4162-DIN** Host Unit for applications requiring mounting on a DIN rail.
3. **Model 4169** 4-Port USB Hub Desktop Unit, for applications requiring an enclosure.
4. **Model 4169-DIN** 4-Port USB Hub Unit for applications requiring mounting on a DIN rail.

## Host and 4-Port USB Hub Typical Application



**USB A-B Cable (6 FT):** Included with Model 4162 / 4162-DIN is the cable ESL Cat. No. 507366. (USB Type A to USB Type B)



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4-Port USB Hub, DIN Rail Mounted Unit... Model 4169-DIN (Cat No. 304169-DIN)  
Included USB A-B Cable, 6 ft.... (Cat No. 507366)

## High Speed Ruggedized LC Fiber-to-USB Converter/Extender, Host & 4-Port USB Hub

### SPECIFICATIONS:

#### USB Interface:

Connectors: Model 4162 - 1x USB Type B, High Retention  
Model 4169 - 4x USB Type A,  
(5V @500mA/port)  
Model 4162-DIN - 1x USB Type B, High Retention  
Model 4169-DIN - 4x USB Type A,  
(5V @500mA/port)

#### USB Data Format:

Type: USB 2.0 Compliant (Backwards compatible USB 1.1)  
Rate: Supports Low Speed (1.5 Mbps),  
Full Speed (12 Mbps), and High Speed  
(480 Mbps) USB Data transfer rates.

#### Fiber Interface:

Connectors: **Fiber Optic LC** SFP Transceiver  
TX Power: -6.5 dBm (Typical)  
RX Sensitivity: -21.5 dB (Typical)  
Optical Budget: 14.5 dB  
Max. Link Distance with 50/125  $\mu$ m fiber: 500 Meters.  
LC/LC Duplex fiber cable - Cat. No. 986147  
Max. Link Distance with 62.5/125  $\mu$ m fiber: 275 Meters.  
LC/LC Duplex fiber cable - Cat. No. 986017  
Wavelength: 850 nm, multimode

#### LED Indicators:

Model 4162 - Power, Fiber Link Active, Host Active  
Model 4169 - Power, Fiber Link Active, Port Active  
Model 4162-DIN - Power, Fiber Link Active, Host Active  
Model 4169-DIN - Power, Fiber Link Active, Port Active

#### Input Power: Requirement

Model 4162 - 5VDC @ 2.5W (Model 4162)  
Model 4169 - 5VDC @ 15W (Model 4169)  
Model 4162-DIN - 5VDC @ 2.5W  
Model 4169-DIN - 5VDC @ 15W

#### Power Connector:

On all models, the input power connector is a DC power jack (Circular Barrel Type).

#### External Power Supply:

The power supply is not included with any of the units and can be ordered separately, ESL Cat. No. 524450.

#### Operating Environment:

Tested operation, 0°C to +50°C; component ratings meet or exceed 0°C to 70°C.

#### Model 4162 Mechanical (Desktop Unit):

Model 4162, Cat No 304162  
Size: 5.0" x 4.25" x 1.4" (12.7 x 10.8 x 3.6 cm)  
Weight: Approx. 11.5 oz (327g)  
Mounting: Desktop Standard, DIN rail (Optional)

#### Model 4169 Mechanical (Desktop Unit):

Model 4169, Cat No 304169  
Size: 5.0" x 4.25" x 1.4" (12.7 x 10.8 x 3.6 cm)  
Weight: Approx. 11.5 oz (317g)  
Mounting: Desktop Standard, DIN rail (Optional)

#### Model 4162-DIN Mechanical (DIN Rail Mounted Unit):

Model 4162-DIN, Cat No 304162-DIN  
Size: 5.0" x 4.25" x 1.4" (12.7 x 10.8 x 3.6 cm)  
Weight: Approx. 11.5 oz (327g)  
Mounting: 2 Threaded Holes Standard, DIN rail  
DIN Rail Bracket Size: 2.84" x 1.24" x 0.16"  
DIN Rail Bracket Weight: 0.9 oz (25.5g)

#### Model 4169-DIN Mechanical (DIN Rail Mounted Unit):

Model 4169-DIN, Cat No 304169-DIN  
Size: 5.0" x 4.25" x 1.4" (12.7 x 10.8 x 3.6 cm)  
Weight: Approx. 11.5 oz (317g)  
Mounting: 2 Threaded Holes Standard, DIN rail  
DIN Rail Bracket Size: 2.84" x 1.24" x 0.16"  
DIN Rail Bracket Weight: 0.9 oz (25.5g)

#### USB Powered Option:

Available only for the Host units, See Models 4662 and 4662-DIN Host units.