

## MultiPower Industrial Media Converters

Choose from four different ways  
to power these hardened media converters.



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Information**

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### **FCC and Industry Canada RF Interference Statements**

Class A (using DC terminal power or Power over Ethernet (PoE)). This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician for help.

Class B (using any DC jack options). . This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician for help.

### **CAUTION**

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

### Certifications



**Class 1 Laser product, Luokan 1 Laserlaite,  
Laser Klasse 1, Appareil A' Laser de Classe**

European Directive 2002/96/EC (WEEE) requires that any equipment that bears this symbol on product or packaging must not be disposed of with unsorted municipal waste. This symbol indicates that the equipment should be disposed of separately from regular household waste. It is the consumer's responsibility to dispose of this and all equipment so marked through designated collection facilities appointed by government or local authorities. Following these steps through proper disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about proper disposal, please contact local authorities, waste disposal services, or the point of purchase for this equipment.



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**Part Numbers**

<b>Part Number</b>	<b>Description</b>
LIC022A-R2	TP-TX/FX-MM1300-ST (5 km)
LIC023A-R2	TP-TX/FX-MM1300-SC (5 km)
LIC024A-R2	TP-TX/FX-SM1310/PLUS-ST (30 km)
LIC025A-R2	TP-TX/FX-SM1310/PLUS-SC (30 km)
LIC026A-R2	TP-TX/FX-SM1310/LONG-ST (80 km)
LIC027A-R2	TP-TX/FX-SM1310/LONG-SC (80 km)
LIC052A-R2	TP-TX/SSFX-SM1310-SC (1310xmt/1550rcv) (20km)
LIC053A-R2	TP-TX/SSFX-SM1550-SC (1550xmt/1310rcv) (20km)
LIC054A-R2	TP-TX/SSFX-SM1310/PLUS-SC (1310xmt/1550rcv) (40km)
LIC055A-R2	TP-TX/SSFX-SM1550/PLUS-SC (1550xmt/1310rcv) (40km)
LIC056A-R2	TP-TX/SSFX-SM1310/LONG-SC (1310xmt/1550rcv) (60km)
LIC057A-R2	TP-TX/SSFX-SM1550/LONG-SC (1550xmt/1310rcv) (60km)

## 1. Specifications

Ethernet Connections	<ul style="list-style-type: none"> <li>• 10/100 BaseT</li> <li>• Auto Negotiation</li> <li>• Auto-Cross</li> <li>• Flow Control</li> <li>• 1916 MTU</li> <li>• Full Line-Rate Forwarding</li> </ul>
DC terminal	7 to 50 VDC, 1 to 0.1A
DC (jack)	5 VDC
PoE	When MultiPower Industrial Media Converters use PoE technology to be a PD, the maximum supply voltage is 50V
AC Wall Adapter	100 to 240 $\pm$ 10% VAC input, 5 VDC output, 2A max.
Power Consumption (Typical)	500mA @ 5 VDC
Operating Temperature DC configurations With AC wall adapter	-13°F to +185°F (-25°C to +85°C) +14°F to +122°F (-10°C to +50°C)
Storage Temperature	-40°F to +185°F (-40°C to +85°C)
Humidity	5% to 95% (non-condensing)
Dimensions	0.83"Hx1.80"Wx3.35"D (2.11x4.57x8.51 cm)

### **2. Overview: About the MultiPower Industrial Media Converters**

The MultiPower Industrial Media Converters provide a single conversion between 10/100 Base-T twisted pair and 100 Base-SX/FX fiber. This device Auto Negotiates speed and duplex on the copper port and the fiber is 100Mbps, FDX. The unit supports jumbo frames up to 1916 MTU.

The MultiPower Industrial Media Converters are fixed fiber transceiver models that include one 10/100 Mbps RJ-45 connector and one 10/100 Mbps SC fiber connector which can support Single Mode fiber or Multi Mode fiber in Dual Strand or Single Strand fiber.

The MultiPower Industrial Media Converters are Industrial Ethernet devices which allows for extended temperature operation of -25°C to +85°C for DC power, or (-10°C to +50°C when using the AC adapter). When installing the MultiPower Industrial Media Converters in an 18 slot tray or using DC power, the temperature range supported is -13°F to +185°F (-25°F to +85°F).



### 3. Install the MultiPower Industrial Media Converters

The MultiPower Industrial Media Converters install virtually anywhere as standalone devices in locations with extremely limited space. Installation options include:

- Velcro strips
- DIN rail mounting with DIN Rail clips
- PowerTray/18 for high density applications

#### 3.1 DIN Rail Mounting

The MultiPower Industrial Media Converters ship from the factory with DIN clips, allowing installation on a DIN rail. Depending on the installation, the MultiPower Industrial Media Converters can be mounted parallel or perpendicular to the DIN rail. Use the supplied screws to attach the DIN clips to the MultiPower Industrial Media Converters, and then snap the converter to the DIN rail.

To remove the converter from the DIN rail, use a flat-head screwdriver in the slot to gently pry the converter from the rail.



#### NOTE

*The DIN clips are designed for use on a DIN-35 rail.*

#### 3.2 Cascading DC Power

When installing multiple MultiPower Industrial Media Converters on a DIN rail, the end user can connect to one DC input source, and then cascade from one DC block to the next, until reaching the maximum current available.



### 3.3 Powering the MultiPower Industrial Media Converters

The MultiPower Industrial Media Converters include multiple powering options:

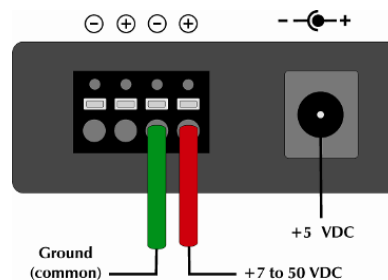
- A country-specific, high-reliability AC power adapter (included)
- The **IEEE 802.3af** Power over Ethernet standard; draws power from power sourcing equipment
- The 4-terminal DC power block
- IE PowerTray 18-Slot AC for Rack Mounting
- USB cable
- IE-5V DIN rail mount Power Supply

### 3.4 About Power over Ethernet (PoE) and MultiPower Industrial Media Converters

Power over Ethernet technology allows the MultiPower Industrial Media Converters to be Powered Devices (PD) and draw power when connected to Power Sourcing Equipment (PSE). Power Sourcing Equipment distributes an electrical current across existing copper data cabling.

### 3.5 DC Terminal Block Wiring Instructions

The MultiPower Industrial Media Converters can also be powered with the DC terminal block. From a power source, connect to any one positive and any one negative terminal on the MultiPower Industrial Media Converters.



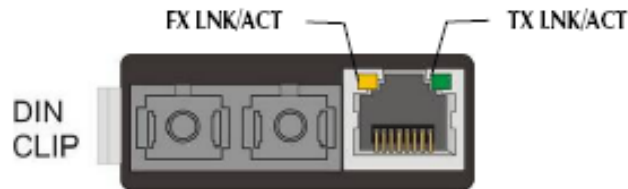
#### NOTE

*When using stranded wire, the leads must be tinned and equivalent to a 16 AWG solid conductor. The DC terminal block is protected against mis-wiring. If the unit is mis-wired, positive power lead to the negative terminal and negative power lead to the positive terminal, it will not function. When powering a unit with voltages near the upper limit of the device's specification (for example: 48 volts) take precautions to limit the voltage at the units terminal block. When turning on high voltage DC circuits, initial voltages may momentarily exceed the unit's specification.*

## 4. Operation

The MultiPower Industrial Media Converters include two LEDs, located on the RJ-45 connector.

LED functions are as follows:



LED functions are as follows (above illustration is representative):

FX LNK/ACT	Glows green when a link is established on the fiber port; blinks green when activity is detected on the fiber port.
TX LNK/ACT	Glows amber when a link is established on the copper port; blinks amber when activity is detected on the copper port.

## 5. Contacting Black Box

### **Black Box Customer Service**

**Order toll-free in the U.S.:** Call 877-877-BBOX  
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**Free technical support,** 24 hours a day, 7 days a week.  
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1000 Park Drive, Lawrence, PA 15055-1018

**Web site:** [www.blackbox.com](http://www.blackbox.com)

**E-mail:** [info@blackbox.com](mailto:info@blackbox.com)

### 6. Fiber Optic Cleaning Guidelines

Fiber Optic transmitters and receivers are extremely susceptible to contamination by particles of dirt or dust, which can obstruct the optic path and cause performance degradation. Good system performance requires clean optics and connector ferrules.

1. Use fiber patch cords (or connectors, if you terminate your own fiber) only from a reputable supplier; low-quality components can cause many hard-to-diagnose problems in an installation.
2. Dust caps are installed at Black Box to ensure factory-clean optical devices. These protective caps should not be removed until the moment of connecting the fiber cable to the device. If you need to disconnect the fiber device, reinstall the protective dust caps.
3. Store spare caps in a dust-free environment such as a sealed plastic bag or box so that when reinstalled they do not introduce any contamination to the optics.
4. If you suspect that the optics have been contaminated, alternate between blasting with clean, dry, compressed air and flushing with methanol to remove particles of dirt.

### 7. Electrostatic Discharge Precautions

Electrostatic discharge (ESD) can cause damage to any product, add-in modules or stand alone units, containing electronic components. Always observe the following precautions when installing or handling these kinds of products.

1. Do not remove unit from its protective packaging until ready to install.
2. Wear an ESD wrist grounding strap before handling any module or component. If the wrist strap is not available, maintain grounded contact with the system unit throughout any procedure requiring ESD protection.
3. Hold the units by the edges; do not touch the electronic components or gold connectors.
4. After removal, always place the boards on a grounded, static-free surface, ESD pad or in a proper ESD bag. Do not slide the modules or stand alone units over any surface.



**WARNING!** Integrated circuits and fiber optic components are extremely susceptible to electrostatic discharge damage. Do not handle these components directly unless you are a qualified service technician and use tools and techniques that conform to accepted industry practices.

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way it should be.



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## About Black Box

Black Box provides an extensive range of networking and infrastructure products. You'll find everything from cabinets and racks and power and surge protection products to media converters and Ethernet switches all supported by free, live 24/7 Tech support available in 30 seconds or less.

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