BLACK BOX
NETWORK SERVICES

LGC5300A
LGC5301A
LGC5302A

Industrial Gigabit PoE Media Converter

The 10/100/1000BASE-T UTP to 1000BASE-X fiber media Converters provide Power-over-Ethernet (PoE).

Supports IEEE 802.3af PoE standard.

Supports 1000BASE-X fixed-fiber (SC) and SFP transceivers.

Customer Support Information

Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 724-746-5500)
FREE technical support 24 hours a day, 7 days a week: Call 724-746-5500 or fax 724-746-0746 • Mailing address: Black Box Corporation, 1000 Park Drive, Lawrence, PA 15055-1018 • Web site: www.blackbox.com • E-mail: info@blackbox.com

FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

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

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

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

Normas Oficiales Mexicanas (NOM) Electrical Safety Statement INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

A: El cable de poder o el contacto ha sido dañado; u

B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

C: El aparato ha sido expuesto a la lluvia; o

D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

E: El aparato ha sido tirado o su cubierta ha sido dañada.

TRADEMARKS USED IN THIS MANUAL

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Product Overview

The *Industrial Gigabit PoE Media Converter* convert 10/100/1000BASE-T UTP to 1000BASE-X fiber and support Power-over-Ethernet (PoE). Classified as Power Sourcing Equipment (PSE), the *Industrial Gigabit PoE Media Converter* provides power to a Powered Device (PD) using standard UTP cables that carry the Ethernet data.

Industrial Gigabit PoE Media Converter

The main function of the PSE is to automatically detect a PD, classify the PD and supply power to the link (only if a PD is detected). The PSE detects a PD by applying a voltage in the range of -2.8 to -10V on the cable and then looks for a 25K ohm signature resistor from the attached PD. A compliant PD is required to have this level of resistance between its twisted pairs. Classification of the PD is done to determine the maximum power levels required by the PD. The PSE measures the PD load current to determine the proper classification and power requirements of the PD. After the PD is classified, the PD is powered up according to its requirements.

The *Industrial Gigabit PoE Media Converter* automatically performs the detection, classification and powering functions. The *Industrial Gigabit PoE Media Converter* supports IEEE 802.3af PoE standard providing up to 15.4W of DC power to the PD.

The fiber and copper ports are configured for auto-negotiation and independently negotiate with the attached device. If the attached device does not support auto-negotiation, the port will default to manual mode. In manual mode, the fiber ports will operate in full duplex and the copper ports will operate in half duplex.

The copper ports support auto-crossover 10/100/1000BASE-T interface and IEEE 802.3af (PoE) operating in Alternative B mode.

RJ-45 Pin Out	Alternative B
1	
2	
3	
4	Vport Positive
5	Vport Positive
6	
7	Vport Negative
8	Vport Negative

The ports support a maximum frame sizes of up to 10,240 bytes.

Installation of the equipment should be such that the air flow in the front, back, side and top vents of the module is not compromised or restricted.

1) Apply DC Power
2) Connect Cables
3) Verify Operation

1) APPLY DC POWER

To power the module using a DC power source, prepare a power cable (not supplied) using a two-conductor insulated 14 AWG wire or better. Cut the power cable to the length required. Strip approximately 3/8 of an inch of insulation from the power cable wires. Connect the power cables to the module by fastening the stripped ends to the DC power connector.

Connect the power wires to the DC power source. The Power LED should indicate the presence of power.

WARNING: Note the wire colors used in making the positive and negative connections. Use the same color assignment for the connection at the DC power source.

NOTE: If mounting with a safety ground attachment, use the safety ground screw at the rear of the module.

2) Connect Cables

a. Insert the SFP Fiber transceiver into the SFP receptacle on the front of the module.

   NOTE: The release latch of the SFP Fiber transceiver must be in the closed (up) position before insertion.

b. Connect an appropriate multimode or single-mode fiber cable to the fiber port on the front of the module. It is important to ensure that the transmit (TX) is attached to the receive side of the module at the other end and the receive (RX) is attached to the transmit side. When using single-fiber (SF) models, the TX wavelength must match the RX wavelength at the other end and the RX wavelength must match the TX wavelength at the other end.

c. Connect the Ethernet 10/100/1000 RJ-45 port via a Category 5 or better cable to an external 10BASE-T, 100BASE-TX or 1000BASE-T Ethernet device.

3) VERIFY OPERATION

Once the module has been installed and configured per steps 1 - 2, verify the module is operational by viewing the LED indicators.

The Power LED indicates the module is receiving power.

The Fiber Optic 1000 LED indicates the fiber optic connection has been established.

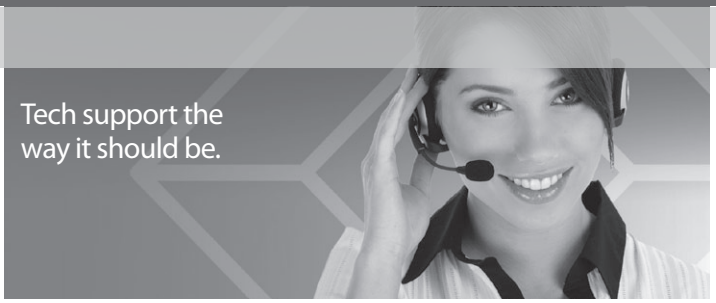
The RJ-45 10/100/1000 LEDs indicate the speed of the UTP connection.

The PSE LED indicates the module has detected a PD and is supplying PoE.

Port LED Indicators		
Legend	**Indicator**	**Description**
Pwr	OFF	Unit not powered
	Green - ON	Unit powered
P1 1000	OFF	No link
	Green - ON	Port linked at 1000Mbps
	Green - Blinking	Port data activity at 1000Mbps
P2 10	OFF	No link
	Green - ON	Port linked at 10Mbps
	Green - Blinking	Port data activity at 10Mbps
P2 1000	OFF	No link
	Green - ON	Port linked at 1000Mbps
	Green - Blinking	Port data activity at 1000Mbps
P2 100 (10 + 1000)	OFF	No link
	Green - ON	Port linked at 100Mbps
	Green - Blinking	Port data activity at 100Mbps
P2 PSE	OFF	Port PSE is inactive
	Green - Blinking	1 flash every 1 second - Signature resistance too low
	Green - Blinking	2 flashes every 1 second - Signature resistance too high
	Green - Blinking	5 flashes every 1 second - Port overload condition
	Green - ON	Port PSE is active

Model	*Industrial Gigabit PoE Media Converter*
Model Type	Gigabit media converter and PoE PSE
Standard (PoE)	IEEE 802.3af
Max PoE Power (per UTP port)	15.4W
Protocols (Ethernet)	Fiber: 1000BASE-X Copper: 10/100/1000BASE-T
Frame size	Up to 10,240 byte frames
Copper Connectors	Ethernet: RJ-45
Fiber Connectors	SFP: LC Dual Fiber: SC
AC Power requirements	100 to 240VAC / 47 to 63Hz 170 mA@120VAC
DC Power requirements	46-57VDC 390 mA
Compliance	UL, CE, FCC Class A
Temperature	Standard Operating: 0 to 50° C Wide Operating: -40 to 65° C Storage: -40 to 80° C
Humidity	5 to 95% (non-condensing)
Altitude	-100m to 4000m
MTBF (Hours) **- AC Model:** **- DC Model:**	 233,000 hrs. 930,000 hrs.

Black Box Tech Support: FREE! Live. 24/7.



Great tech support is just 60 seconds away at
724-746-5500 or blackbox.com.

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NETWORK SERVICES

About Black Box

Black Box Network Services is your source for 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 60 seconds or less.

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