BLACK BOX NETWORK SERVICES

LMC11032A
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DFCS XGT+ Stand Alone Module

Converts 10GBASE-T Ethernet to SFP+ or XFP Fiber

Supports Pluggable 10 Gigabit Transceivers
- RJ45 to SFP+
- RJ45 to XFP

Customer Support Information

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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

This User Manual describes the functions of the *DFCS* XGT+ Rev 1.

Product Overview

The *DFCS* XGT+ is a 10 Gigabit Ethernet media converter with one 10GBASE-T RJ-45 port and one pluggable transceiver port that provides copper-to-fiber and copper-to-copper media conversion. Copper-to-fiber conversion is achieved with XFP or SFP+ fiber transceivers. Copper-to-copper conversion is achieved with a CX4 XFP transceiver.

The XGT+ supports high-power (power level 4) XFP transceivers, and the latest generation of wavelength tunable DWDM XFP transceivers.

Installation Procedure

1) Configure DIP-switches

2) Install Standalone Module and Connect Cables

3) Verify Operation

1) CONFIGURE DIP-SWITCHES

DIP-SWITCH BANK 1

The location of the DIP-switches is shown in Figure 1.

The function of DIP-switch Bank is outlined in Figure 2.

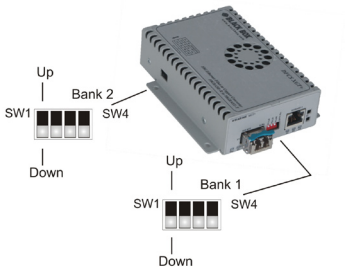

Figure 1: DIP-switch Location

Switch	DOWN (Default)	UP
SW1	Normal	P1 Loopback Enabled
SW2	Normal	P2 Loopback Enabled
SW3	Normal	P2 Short Range
SW4	Normal	P1 Built-In Self Test (BIST)

Figure 2: DIP-switch BANK 1 Definitions

SW1 - P1 LOOPBACK “P1-LB”

When this DIP-switch is in the DOWN position (factory default), port P1 loopback is disabled. When this DIP-switch is in the UP “P1-LB” position, loopback is enabled on port P1. When enabled, all data received on port P1 is transmitted out port P1 and the connection between port P1 and port P2 is interrupted.

NOTE: For the XFP model, simultaneous loopback of port P1 and port P2 requires the XFP transceiver to support lineside loopback capability.

SW2 - P2 LOOPBACK “P2-LB”

When this DIP-switch is in the DOWN position (factory default), port P2 loopback is disabled. When this DIP-switch is in the UP “P2-LB” position, loopback is enabled on port P2. When enabled, all data received on port P2 is transmitted out port P2 and the connection between port P2 and port P1 is interrupted.

NOTE: For the XFP model, simultaneous loopback of port P1 and port P2 requires the XFP transceiver to support lineside loopback capability.

SW3 - P2 Short Range

When this DIP-switch is in the DOWN position (factory default), port P2 short range feature is disabled. When disabled, port P2 will support up to 100 meters of CAT 6A cabling. When this DIP-switch is in the UP “P2-SR” position, port P2 will support up to 30 meters of CAT 6A or better cabling in a reduced power consumption mode.

SW4 - P1 BIST (SFP+ Model Only)

When this DIP-switch is in the DOWN position (factory default), port P1 Built-In Self Test is disabled. When this DIP-switch is in the UP “P1-Tst” position, the port will transmit a Pseudo Random Bit Sequence (PRBS).

When two XGT+ converters are connected via port P1 (Port 1 to Port 1), the BIST function is supported. The XGT+ initiating BIST (DIP-switch SW4 UP) will generate and send a PRBS pattern out Port 1 to the other module. The receiving XGT+ will detect a good test pattern and return a PRBS acknowledgement test pattern back to the initiating XGT+.

A successful test will produce a green blinking (5Hz) P1 LB LED on the initiating XGT+ and a green blinking (1Hz) P1 LB LED on the receiving XGT+. If the initiating XGT+ does not receive a valid response, the P1 LB LED will be blinking amber (5Hz). When BIST is initiated, the traffic received on Port 2 of both converters will be discarded.

If loopback has been initiated, the self diagnostic circuit test DIP-switch will be ignored. If self diagnostic circuit test has been initiated, the loopback DIP-switches will be ignored.

DIP-SWITCH BANK 2

LINK MODES

SW1 and SW2 - LINK MODES

These DIP-switches configure the different link modes available on the XGT+. It is recommended to have link modes set to Link Segment (default setting - all DOWN) during the initial installation. After the circuit has been tested and operational, configure the module for the desired mode. Refer to Figure 3 for configuration options.

SW1	SW2	Function
DOWN	DOWN	Link Segment (default)
UP	DOWN	Asymmetrical Link Propagate P1 to P2
DOWN	UP	Asymmetrical Link Propagate P2 to P1
UP	UP	Symmetrical Link Propagate

Figure 3: DIP-switch BANK 2 Link Modes

SW3 and SW4 - RESERVED

These DIP-switches are for factory use only and must always remain in the DOWN (factory default) position.

2) INSTALL STANDALONE MODULE AND CONNECT CABLES

a. The XGT+ is available as a standalone module with built-in mounting brackets. For wall-mounting, attach the XGT+ to a wall, backboard or other flat surface. For tabletop installations, place the unit on a flat level surface. Attach the rubber feet to the bottom of the XGT+ to prevent the unit from sliding. Make sure the unit is placed in a safe, dry and secure location.

   To power the unit using the AC/DC adapter, connect the AC/DC adapter to an AC outlet. Then connect the barrel plug at the end of the wire on the AC/DC adapter to the 2.5mm DC barrel connector (center-positive) on the unit. Confirm that the unit has powered up properly by checking the power status LED located on the front of the unit.

   To power the unit using a DC power source, prepare a power cable using a two conductor insulated wire (not supplied) with a 14 AWG gauge minimum. 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 unit 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 unit.

b. Insert the appropriate 10G SFP+ or XFP transceiver (depending on the model of the module) into Port 1 receptacle on the XGT+. The release latch of the transceiver must be in the closed position before insertion.

c. Connect an appropriate multimode or single-mode fiber cable to the fiber transceiver port on the XGT+. It is important to ensure that the transmit (Tx) is attached to the receive side of the device at the other end and the receive (Rx) is attached to the transmit side.

d. When using copper CX4 XFP, connect the cable between the converter and external device using the recommended copper CX4 cable.

e. Connect the RJ-45 port via a CAT 6A or better cable to a 10GBASE-T Ethernet device.

3) VERIFY OPERATION

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

Legend	OFF State	Color	ON/Blinking State
Pwr	Off – No power.	Green	Green – Power On
P1 Lk	Off – No Transceiver detected or no fiber link.	Green	Green Solid – Fiber link (signal detect).
		Amber	Amber Blinking (1Hz) – Port is disabled due to installed transceiver drawing more current than allowed.
P1 Stat	Off – Transceiver does not support digital diagnostic or no transceiver installed.	Green	Green Solid – Transceiver supports digital diagnostic and no DDMI Alarm Detected.
		Amber	Amber Solid – Transceiver supports digital diagnostic and DDMI alarm detected. Amber Blinking (1Hz) – Port is disabled due to installed transceiver drawing more current than allowed.
P1 LB	Off – Port loopback mode not enabled or configured.	Green	Green Solid – Port set to Loopback mode and port in loopback. Green Blinking (1 Hz) – Port responding to BIST activation with valid BIST response. Green Blinking (5 Hz) – Port initiating BIST and receiving valid BIST response.
		Amber	Amber Solid – Port set to loopback mode, but XFP does not support loopback Amber Blinking (5 Hz) – Port initiating BIST and not receiving valid BIST response
P2 Lk	Off – No Transceiver detected or no fiber link.	Green	Green Solid – Fiber link
		Amber	Amber Blinking (1Hz) – Port is disabled due to installed transceiver drawing more current than allowed.
P2 SR	Off - Short Reach function is disabled.	Green	Green Solid – Short Reach function is enabled.
P2 LB	Off – Port loopback mode not enabled or configured.	Green	Green Solid – Port set to Loopback mode and port in loopback.
		Amber	Amber Solid – Port set to loopback mode, but loopback is not supported.

Figure 4: LED Indicators

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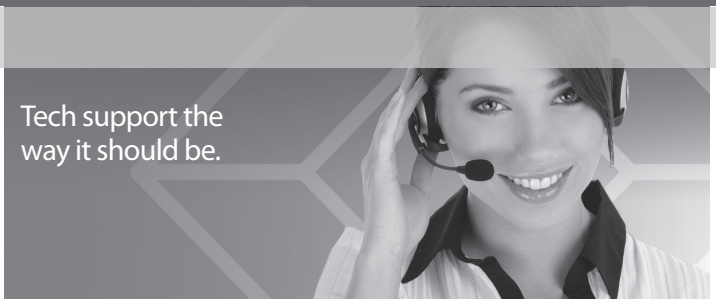

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