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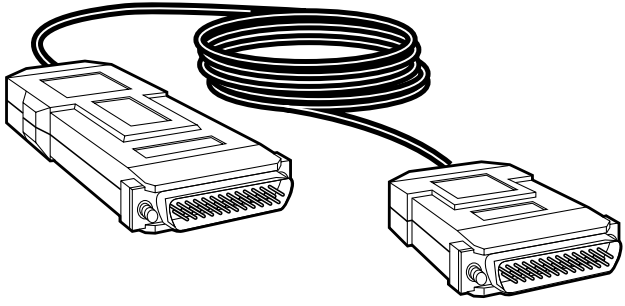
1000 Park Drive • Lawrence, PA 15055-1018 • 724-746-5500 • Fax 724-746-0746

BLACK BOX®
NETWORK SERVICES

AUGUST 2003
PI048A

PC-Powered Parallel to Serial Interface Converter



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 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 a 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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1. Specifications

Data Format: IBM® PC parallel or compatible parallel to async serial

Data Rate: 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps switch-selectable

Flow Control: To the PC: When the buffer is full, the BUSY pin (pin 11 of the parallel interface) signals the PC to halt the transmission of data;
From the printer: When the printer wants to stop the converter from transmitting data, it signals the converter in one of two ways (or both):

1) Hardware flow control
(pin 11 or pin 20)

2) Software flow control
(X-ON/X-OFF, DC1/DC3)

Asynchronous Characters: 7 or 8 data bits, one stop bit

Parity: Even, odd, or no parity

Connectors: (2) DB25 male

Cable Length: 6.6 feet (2 m)

Operating Temperature: 32 to 122°F (0 to 50°C)

Relative Humidity Tolerance: 10 to 95%, noncondensing

Power: Power is derived directly from the PC through a power adapter (supplied), or from a wallmount transformer (included) that can supply at least 100 mA DC between 5V and 9V

Size: 0.9"H x 2.1"W x 4.3"D (2.3 x 5.3 x 10.9 cm)

Weight: 0.9 lb. (0.4 kg), including cable and connector

2. Introduction

2.1 Description

The PC-Powered Parallel to Serial Interface Converter enables an IBM PC or compatible to use a serial printer from the parallel port, and eliminates the need for an additional card and using a slot in the PC.

The converter acts on flow control from the printer and stops sending data when the printer signals that it is busy. Two types of flow control are used: Hard (activating a control signal) or Soft (X-ON/X-OFF). If the flow-control strap is set to Soft, both flow control types are in operation. When the strap is set to Hard Only, the Soft flow control is disabled.

Data from the PC is strobed to the converter's internal buffer (64 bytes) and is internally converted to async serial form. The printer can halt the converter by signaling OFF to pin 11 (or pin 20), or by using the X-ON/X-OFF software flow control. Only when the internal buffer is full will the converter signal the PC to stop (through the BUSY pin of the parallel interface).

In addition to flow control, the converter also detects the printer status (off, off-line, or failure) and uses it to control the ERROR and SELECT pins of the parallel interface. When the flow-control selection is either pin 11 or none, the status indication is taken from the printer's pin 20 (DTR). When the flow-control selection is pin 20, the status indication is taken from the printer's pin 4 (RTS). When X-OFF is detected without an X-ON following within 60 seconds, the printer is also considered failed, and the failure is indicated on the ERROR and SELECT pins.

Power is derived from the PC through an external power adapter (included). The wallmounted transformer can be used for those PCs which are not compatible with the supplied adapter. (Call Technical Support for more information.)

The converter is compatible with all async character formats using 7 or 8 data bits and one stop bit, and it operates with or without parity.

2.2 Features

- Enables connection of a serial printer to the parallel port of a PC.
- Supports both Soft and Hard flow control.
- 64-byte printer buffer.
- Power derived from the PC.
- Complete with cable and connectors.
- Easy to install.
- Miniature size, lightweight.

3. Installation

Installing the Converter is straightforward and simple. First, check to make sure the unit's factory setting (Table 3-1 and Figure 3-1) meets your requirements. If it does, go straight to Step 8. If not, go through the whole installation.

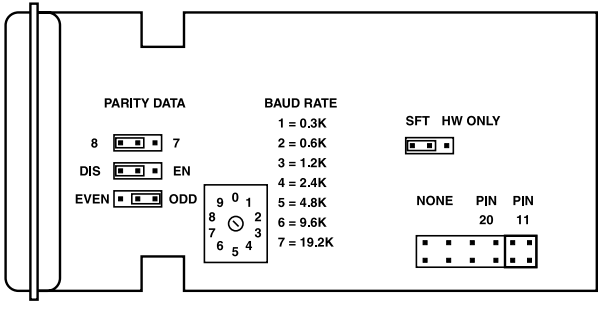

Figure 3-1. Strap layout.

Table 3-1. Strap selection.

Strap Identity	Function	Position	Factory Setting
Select Parity	Even or odd parity.	EVEN or ODD	ODD
Parity Enable	Determines parity or no parity.	EN or DIS	DIS
Data Bits	Matches number of bits to the printer.	7 or 8	8
Data Rate	Matches speed of converter to the printer.	1=300 bps 2=600 bps 3=1.2 kbps 4=2.4 kbps 5=4.8 kbps 6=9.6 kbps 7=19.2 kbps	1.2 kbps
Flow Control Type	Determines the flow control: SFT for Soft or Hard; HW ONLY for Hard only.	SFT or HW ONLY	SFT
Hard Flow Control Signal	Determines which pin of the printer's interface is used for flow control.	NONE, Pin 20, or Pin 11	Pin 11

1) Separate the two parts of the plastic cover by firmly pressing the marked places on the sides, starting at the cable end.

2) Select the parity enable or disable by strapping Parity Enable to EN or DIS.

3) Select the parity (even or odd) and strap Select Parity to the appropriate position. When using no parity, the strap can be either EVEN or ODD.

4) Select the number of data bits (7 or 8) to suit the printer, and strap the converter accordingly. Note that the printer should be strapped for one stop bit. Use the printer manual.

5) Select the correct data rate by rotating the Baud Rate switch to the required data rate to match the printer rate (see Table 3-1).

6) Determine the flow control needed to suit your application: Hard, Soft, or both flow controls. If either Soft flow control or both flow controls are required, strap the 2-position jumper to SFT. When the strap is set to HW ONLY, the Soft flow control is disabled.

Using the double jumper, strap-select the pin used for Hard flow control (pin 11 or pin 20). If Hard flow control is not supported, strap-select the double jumper to NONE. Note that if HW ONLY is selected on the first jumper and NONE is selected on the second jumper, all types of flow control will be disabled. This is not recommended.

7) Close the unit by pressing the two plastic covers together.

8) Connect the power adapter between the PC and the keyboard.

9) Connect the DC jack to the converter. Note that the wallmount transformer may be used instead of the power adapter.

10) Plug the converter directly into the PC and the cable connector into the printer.