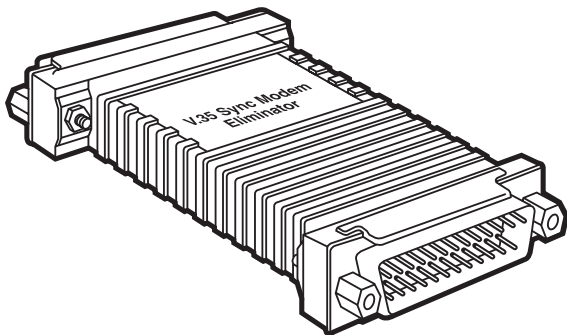




V.35 Sync Modem Eliminator



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.

TRADEMARKS USED IN THIS MANUAL

Any trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.

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 conectado 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 líneas 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 objetos 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: Objetos 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.

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1. Specifications

Data Rates	32, 48, 56, 64, 72, 112, 128, and 144 kbps
Clocking	Internal, external, or receive loopback
Interface	CCITT V.35/EIA RS-530
Distance	300 feet (91.4 m), DTE to DTE
Connectors	DB25 female on both Port A and Port B
Power Supply	Draws interface power from RTS and DTR signals on both ports
RTS/CTS Delay	Strap-selectable for 0, 7, or 53 ms ($\pm 15\%$)
MTBF	111,647 hours
MTTR	1 hour
Temperature	32 to 140°F (0 to 60°C)

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Humidity	Up to 95%, noncondensing
Altitude	Up to 10,000 feet (3048 m)
Size	3"H x 2"W x 0.75"D (7.6 x 5.1 x 1.9 cm)
Shipping Weight	1 lb. (0.5 kg)

2. Introduction

2.1 Description

The V.35 Sync Modem Eliminator lets two synchronous hosts communicate with each other in the same room for a fraction of the cost of a pair of high-speed modems. Supporting synchronous data rates of 32, 48, 56, 64, 72, 112, 128, and 144 kbps, the V.35 Sync Modem Eliminator can be configured to emulate dialup or leased-line service. Maximum distance between the connected hosts is 300 feet (91.4 m). Timing can be set for internal or external clock, and all necessary data, clocking, and control signals are supported.

The V.35 Sync Modem Eliminator implements the V.35 electrical interface on dual DB25 female connectors, according to the EIA-530 Standard. (Adapter cables to go from the DB25 interface to a standard M/34 connector are available. Ask your supplier for more information on EHN1206-05 and EHN1206-06.) Operating power for the V.35 Sync Modem Eliminator is drawn from the V.35 interfaces, so no AC power or batteries are required.

2.2 Features

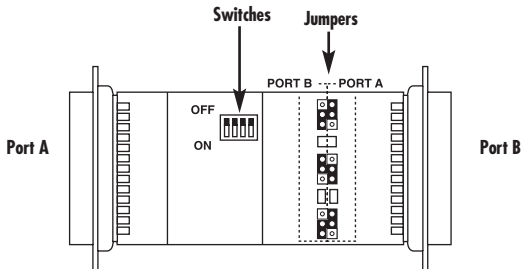
- V.35 (EIA-530) operation.
- Synchronous data rates from 32 to 144 kbps.
- Host-to-host distances up to 300 feet (91.4 m).
- Constant or RTS-controller carrier selections.
- RTS-CTS delay options of 0, 7, or 53 milliseconds.
- Power derived from V.35 interface.
- Internal or external clocking.
- All necessary data, clocking, and control signals supported.

3. Configuration

The V.35 Sync Modem Eliminator is equipped with one internal four-position DIP switch and six internal jumpers that allow configuration for a wide range of applications.

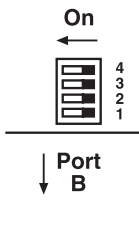
3.1 Accessing Switches and Jumpers

All switches and jumpers are located on the V.35 Sync Modem Eliminator PC board. To access the PC board, open the V.35 Sync Modem Eliminator case by inserting a small flat-blade screwdriver in the slot on either side of the case and twisting gently. As the figure below illustrates, the DIP switches are located on the daughterboard and the jumpers are located on the main PC board.



3.2 Internal DIP Switch

The V.35 Sync Modem Eliminator has one four-position DIP switch mounted on the internal daughterboard. The figure below shows the numbering of the individual switches and their ON/OFF positions relative to the daughterboard.



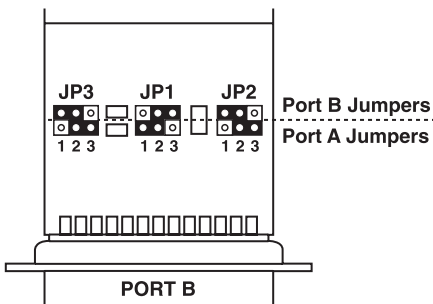
S1 through S3: Data Rate Setting

Switches S1 through S3 are set in combination to determine the synchronous data rate for the V.35 Sync Modem Eliminator. Switch S4 is not active.

<u>S1</u>	<u>S2</u>	<u>S3</u>	<u>S4</u>	<u>Setting</u>
Off	Off	Off	N/A	32 kbps
On	Off	Off	N/A	48 kbps
Off	On	Off	N/A	56 kbps
On	On	Off	N/A	64 kbps
Off	Off	On	N/A	72 kbps
On	Off	On	N/A	112 kbps
Off	On	On	N/A	128 kbps
On	On	On	N/A	144 kbps

3.3 Internal Jumpers

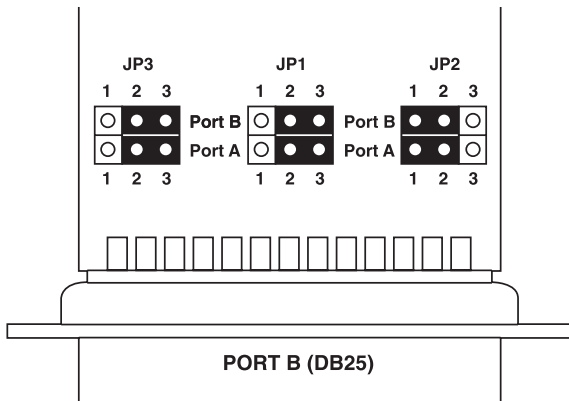
The V.35 Sync Modem Eliminator has three pairs of jumpers (JP1, JP2, and JP3) mounted on the internal PC board (see the figure below). These jumpers set clocking, carrier, and RTS/CTS delay independently for ports A and B.



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The figure below presents a detailed view of JP1, JP2, and JP3. Note that each pair contains one strap to configure Port A and one strap to configure Port B. Note also that each strap has three possible positions: covering posts 1 and 2, covering posts 2 and 3, or removed altogether.

The detailed description for each pair of jumpers presents all valid strap-position options.



JP1: RTS/CTS Delay

The setting for jumper JP1 determines the amount of delay between the time the V.35 Sync Modem Eliminator “sees” RTS and when it sends CTS. In order to emulate either dialup or leased-line modems, you can set this strap at either 0, 7, or 53 ms.

NOTE

**Port A and Port B must be configured separately.
Jumper functions are identical.**

JP1

Position 1 and 2
Position 2 and 3
Strap Removed

Setting

7-ms delay (factory default)
53-ms delay
0-ms delay

JP2: Carrier Control

The setting for jumper JP2 determines whether the V.35 Sync Modem Eliminator’s carrier is constantly on or controlled by RTS.

NOTE

**Port A and Port B must be configured separately.
Jumper functions are identical.**

JP2

Position 1 and 2
Position 2 and 3
Strap Removed

Setting

Carrier controlled by RTS
Carrier Constantly ON (factory default)
Not a valid setting

JP3: Clock Source

The setting for jumper JP3 determines whether clocking is internal, external, or receive loopback.

NOTE

Only port A may be set for external clock.

If Port B is set for receive loopback clock, Port A *must* be set for external clock. Port B may *not* be set for external clock.

JP3 (Port A)

Position 1 and 2
Position 2 and 3
Strap Removed

Setting

Internal Clock (factory default)
External Clock
Not a valid setting

JP3 (Port B)

Position 1 and 2
Position 2 and 3
Strap Removed

Setting

Internal Clock (factory default)
Receive Clock
Not a valid setting

4. Installation and Operation

Once the V.35 Sync Modem Eliminator is properly configured, installation and operation are very simple. The V.35 Sync Modem Eliminator draws all necessary operating power from the V.35 interface, so no AC power or batteries are needed. And there is no power switch. The unit should operate transparently—just like a cable—when the host devices are turned on and communicating. Follow the installation and operation instructions below.

1. Configure the V.35 Sync Modem Eliminator for your specific application according to the instructions in **Chapter 3**.
2. Turn off the host (DTE) devices to which the V.35 Sync Modem Eliminator will be connected.
3. If one of the host devices has an EIA-530 port, you may plug the V.35 Sync Modem Eliminator directly into that device. Then connect the V.35 Sync Modem Eliminator to the other host device using a multipair cable (custom DB25 to M/34 adapter cables are available—call your supplier for more information on EHN1206-05 and EHN1206-06) *not to exceed 300 feet (91.4 m) in length*.

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- If neither host device has an EIA-530 port, you will need a multipair adapter cable (custom DB25 to M/34 adapter cables are available—call your supplier for information on EHN1206-05 and EHN1206-06) for each end of the V.35 Sync Modem Eliminator. *The total cable length must not exceed 300 feet (91.4 m).* See Figure 4-1.

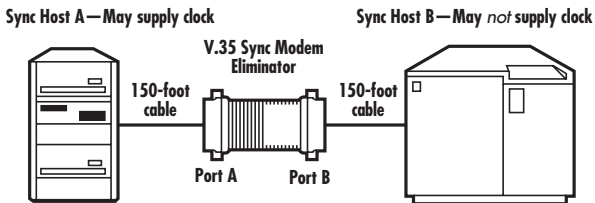
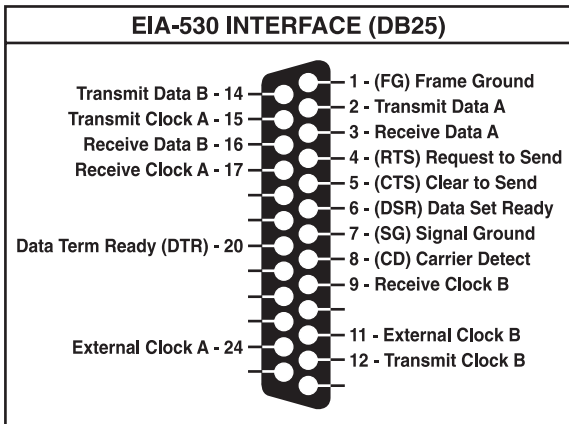


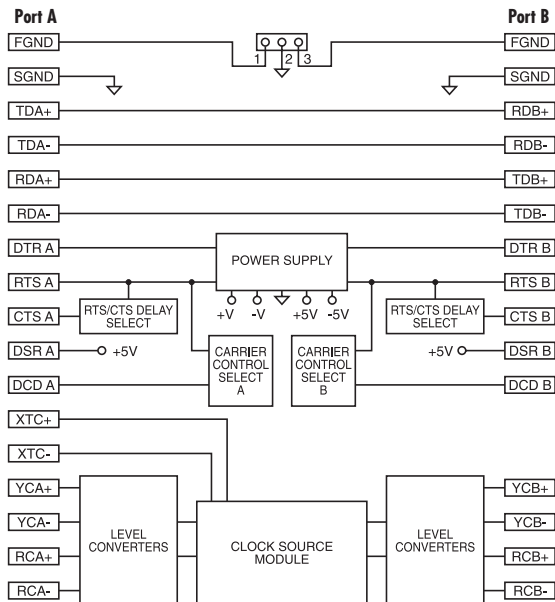
Figure 4-1. Maximum allowable cable distances.

- Turn on both host devices. They should communicate normally as if connected by a simple cable. If they do not communicate properly, check the configuration of the V.35 Sync Modem Eliminator and each host device (who is supplying the clock?, etc.). If problems still exist, call your supplier for technical support.

Appendix A. Interface Standards



Appendix B. Block Diagram





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