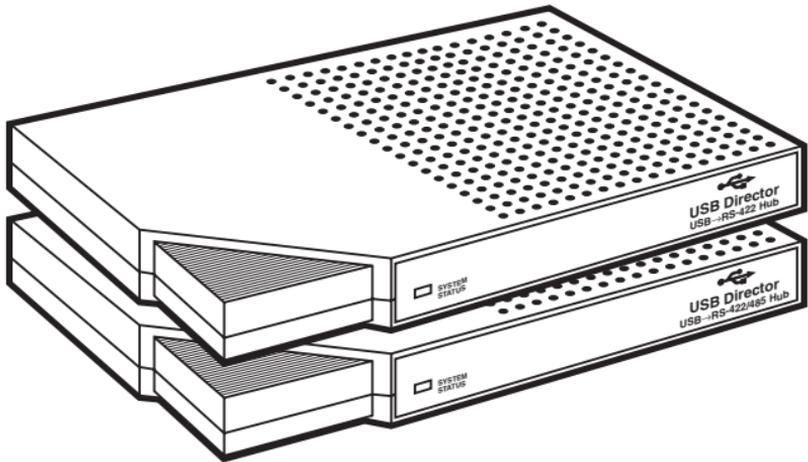




USB Director↔RS422/RS485 Hub 2-Port
USB Director↔RS422 Hub 4-Port
NT 4.0 Software Support Upgrade



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

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**FEDERAL COMMUNICATIONS COMMISSION
AND CANADIAN DEPARTMENT OF COMMUNICATIONS
RADIO FREQUENCY INTERFERENCE STATEMENT**

Class B Digital Device. 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.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B 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 debe 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 física 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 energía.
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 líquidos 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

- System Requirements** — Pentium-class CPU;
16-MB RAM;
USB products can only be used with a computer that has Windows® 98 or Windows 95 version 4.00.950b with the USB supplement (QFE 1214), also known as OSR 2.1
- Compliance** — EN 55022 Class B,
EN 50082-1, EN 60950,
CSA 22.2 No. 950, FCC Part 15, UL® 1950
- Maximum Distance** — 15 ft. (4.6 m)
- Connectors** — Both: (1) Type B USB;
IC160A: (2) DB9 male;
IC161A: (4) DB9 male
- Indicators** — (5): (1) Power, (4) Port ID

USB DIRECTOR HUBS

Operating Temperature — 32 to 104°F (0 to 40°C)

Humidity Tolerance — 5 to 95%

Power — Derived from the USB port

Size — 5.6"H x 3"W x 1"D (14.2 x
7.6 x 2.5 cm)

Weight — 2.5 lb. (1.1 kg)

2. Introduction

These hubs are intelligent, stackable expansion modules that connect to a PC or server via the Universal Serial Bus (USB) port. This provides high-speed RS-422/485 or RS-422 serial ports.

The USB Director Hubs feature easy connectivity for modems, printers, video-editing equipment, and point-of-sale and industrial control devices that use a standard serial interface. By simply plugging in a USB Director Hub, you:

- add either 2 (for the IC160A) or 4 (for the IC161A) high-speed serial ports to your PC or server in seconds, and
- eliminate the configuration issues associated with high-priced, older card solutions. That means you avoid the hassle of removing your PC cover and you won't have to reboot the operating system during installation.

The USB Director Hubs use USB technology to convert your PC into a powerful communications server providing instant connectivity to modems, terminal adapters, and other serial devices.

WHAT'S INCLUDED

You should have received the following equipment if you ordered the IC160A or IC161A.

- (1) USB Director Hub (either the IC160A or IC161A).
- (1) 3-ft. USB cable.
- This manual.
- (4) Software diskettes: (1) Windows 95 drivers, (1) Windows 98 drivers, (1) Windows 2000 drivers, (1) Windows NT 4.0 drivers.

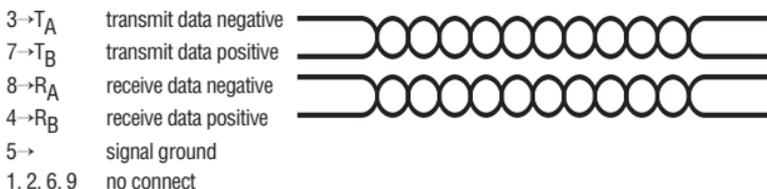
If you ordered the TD150, you should have received this manual and one 3.5" disk.

3. Configuration

3.1 The Cable Connections (DB9 Female)

IMPORTANT

Note that for full duplex (shown in the diagram below), the differential pair T_A and T_B should be together in one twisted pair, and R_A and R_B should be together in another twisted pair. Half duplex uses only one twisted pair.



3.2 The Two-Position DIP Switch

Both USB Director Hubs have a two-position DIP switch. This switch connects the signal ground to chassis ground.

WARNING

Do not connect signal ground to chassis ground on more than one location in order to prevent ground loops and potentially high currents. See the illustration below.

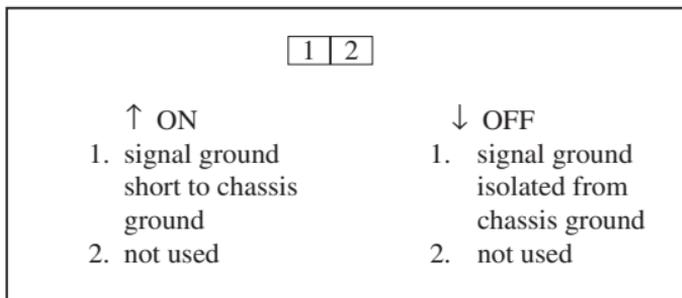


Figure 3-1. Two-Position DIP Switch.

3.3 Configuring the USB Director USB-RS422/RS485 Hub 2-Port (IC160A)

This hub, which supports both RS-422 and RS-485, also has two sets of eight-position DIP switches, one set for each serial port. Figure 3-2 shows what each switch selects in its ON and OFF positions. Consult Figure 3-3 for various configuration options.

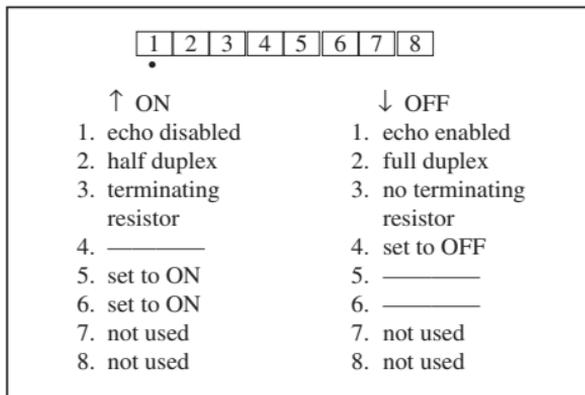


Figure 3-2. Eight-Position DIP Switches.

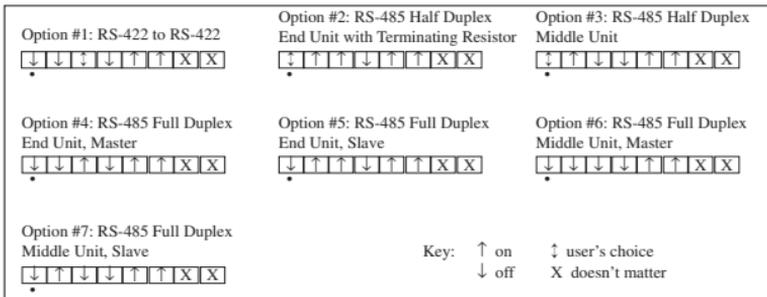


Figure 3-3. Various Configurations for the IC160A DIP Switches.

3.4 Verifying That Your System Supports USB

If you're using Windows 98, which fully supports USB, go to **Chapter 4**. If you're using Windows 95 OSR2.1 or above, read this section. If you have an earlier version of Windows 95, read the second note in **Section 4.4**.

To determine if your system supports USB:

1. Insert the disk labeled, "Driver disk" into drive A:
2. In the START menu, select RUN.
3. Type `a:\usbready`.

One of two USB System Checker screens will appear. If your system supports USB, the screen will read, "This system DOES have support for USB." To continue installation, go to **Chapter 4**.

If your system does not support USB, the screen will read, "This system DOES NOT currently support USB!" Proceed to **Section 3.5**.

3.5 Determining Why Support Is Not Present

NOTE

This section is for Windows 95 users only.

The DETAILS button in USBREADY can help you determine what's preventing USB support.

Click on the DETAILS button.

If the USB Class Host Controller window reads, “No USB Host Controller Found” then the necessary hardware, a USB Host Controller, has not been detected. If your PC does not have USB connectors, then this system will not support USB regardless of the Windows version. You will need to purchase a PCI USB controller card. If your PC does have USB connectors, verify that the USB hardware is enabled in your system BIOS configuration.

If the USB Class Host Controller window displays any other message, such as “Standard,” “Intel,” “Universal,” or “Open” Host Controller, then hardware support is present, but an incompatible version of Windows is currently installed.

If the Test Results Detailing screen shows Windows 95 version 4.0.1111, which is Windows 95 OSR.2, go to **Section 4.4**. You will need to upgrade to OSR 2.1 by installing the USB supplement before installing the USB Director Hub.

IF YOU HAVE WINDOWS NT™4.0

Windows NT4.0 is supported with the use of an NT4.0 software support kit, part number TD150. You'll need a Pentium® class CPU, 16-MB RAM, and Windows NT4.0.

To install the software:

1. Insert the diskette into Drive A:
2. Go to the START menu, then to RUN. Type
a:\Setup.exe.
3. Plug the flat end of the USB cable into the downstream A connector on the back of the PC or on a USB hub port. Plug the round end into the USB/serial hub.

4. Verify that the USB serial ports are configured properly with the configuration utility. Press **Start**, then **Programs**, then **USB Director Utility**, then **Director Configuration Utility**.
5. The general box will show that the USB Director is installed. Click **Configure** to view the port settings that were selected. If you want to change the port assignments, enter the port numbers you want in the windows.

NOTE

Do not reassign a port number to a port that is already in use.

Click OK when finished.

NOTE

If you have problems installing this software, contact Technical Support.

4. Installation

4.1 Plugging the Hub into Your PC

Plug the flat end of the USB cable into the USB port on the back of your PC *or* into an available USB port on a standard hub. Plug the D-shaped end into the USB Director Hub.

NOTE

The USB Director Hub normally derives its own power from the Universal Serial Bus. However, the power may be supplied by a UL Listed Direct Plug-In Power Unit marked “Class 2” and rated 5 VDC, 200–800 mA if used in the U.S. and Canada or a power supply with similar rating and approved by your local safety code if it is used elsewhere. For polarity, note the diagram below.



If you have Windows 95, go to **Section 4.2**. For Windows 98, go to **Section 4.3**.

4.2 Installing the Drivers for Windows 95 Users

After connecting the USB cable, if the following screen (Figure 4-1) does not appear, go to **Section 3.5**.

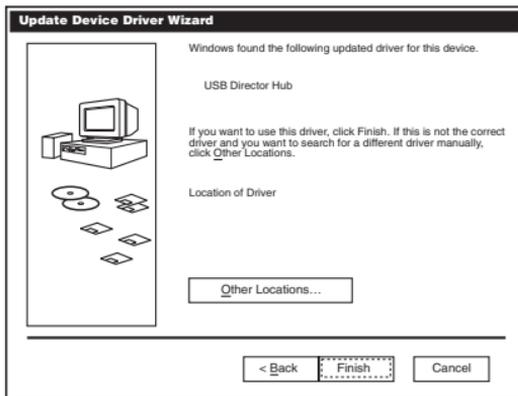


Figure 4-1. Update Device Driver Wizard.

To install the USB Director Hub drivers:

1. Insert the Driver disk into drive A:.
2. Click on NEXT and initiate a floppy-drive search for the updated driver device.
3. Click on FINISH to continue with the installation. The Insert Disk screen (Figure 4-2) will appear.



Figure 4-2. Insert Disk Screen.

4. Click on OK. The Copying Files... screen will appear.
5. Type A: in the Copy File From field and click OK.

Files will be copied from the disk to your system.

The Update Device Driver Wizard screen (Figure 4-1) will appear a second time in order to install support for Windows 95 communication ports.

Follow the instructions on the screen. Wait as ports are assigned. Installation is complete when the screen disappears. Your new communication ports, numbered sequentially following the existing ports in your system, are now ready.

4.3 Installing the Drivers for Windows 98 Users

After connecting the USB cable, the Add New Hardware Wizard screen (Figure 4-3) appears.

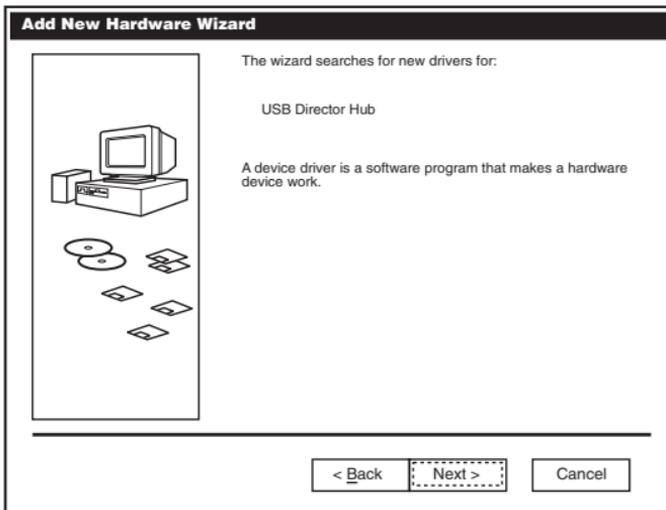


Figure 4-3. Add New Hardware Wizard.

1. Insert the Driver disk into drive A:. Follow the recommended on-screen instructions. The driver files will be copied into your Windows System.
2. Click on FINISH to complete the installation of the COM ports.

When the Add New Hardware Wizard initiates its second search, it will be creating the new COM ports. Again, follow the instructions on the screen. Installation is complete when no more screens appear. Your new communication ports, numbered sequentially following the existing ports in your system, are now ready.

4.4 Installing Microsoft USB Support

NOTE

This sections is for Windows 95 users only.

NOTE

Note that Windows 95 versions 4.0.950 and 4.0.950a do not support the upgrade path to USB. Unfortunately, Microsoft has not provided an upgrade path to OSR2 from earlier versions of Windows. OSR2 must be preinstalled by your PC vendor. You can solve the problem by upgrading to Windows 98.

Microsoft provides a supplemental program (usbsetup.exe) to allow users to upgrade Windows 95 version OSR2 to support the Universal Serial Bus. In order to install this support:

1. Insert your Windows 95 CD into your CD-ROM drive.
2. In the START menu, select RUN.

3. Type <CD drive letter>:\other\usb\usbsupp.

Follow the instructions on the screen. After rebooting, go back to step 1 in **Section 3.4**. Make sure that the Test Results Details (from the Details button in the USB System Checker screen) displays Windows 95 version 4.1212 or higher.

5. Operation

5.1 Using the Port Manager Utility

The port manager utility.exe program file, found in your Windows System directory, allows you to manage various USB Director Hub resources. You may check the version numbers and other information pertaining to the USB Director Hub drivers. You can uninstall the USB Director Hub environment. You can check the mapping of each physical communications port to the Windows COM-port numbers. You can reassign the physical ports on your USB Director Hub to any available Windows COM-port number from 1 to 255. You may also give your USB Director Hub a user-friendly name. This is particularly helpful if you have more than one USB Director Hub.

5.2 Interpreting the System Status Light

- Red* This signifies a loss of USB communication with the host. If the loss is due to unplugging the unit, when it is reconnected, the light will blink red a few moments before turning green. Otherwise, the light indicates a problem with the drivers, which may need to be reinstalled. The red light will also blink during installation until the installation is complete.
- Amber* This signifies serial-port activity on the USB Director Hub. The yellow light may also flash briefly during installation.
- Green* This indicates that the serial ports have been successfully set up and the USB Director Hub is operating normally.



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