

September 2006

BLACK BOX® *ServSwitch* DTX 5000



DTX5000-R
DTX5000-T

Welcome to the ServSwitch™ Family!

Thank you for purchasing a BLACK BOX® ServSwitch DTX5000 system! We appreciate your business, and we think you'll appreciate the many ways that your new DTX5000 System will save you money, time, and effort.

The BLACK BOX® DTX5000 system allows desktop users to access a full computer experience from anywhere on the corporate TCP/IP network, while maintaining the computers securely housed in a corporate data center. This desktop experience includes access for the desktop user to keyboard, mouse, both digital and analog video, audio and USB mass storage devices.

This solution can be deployed as a point-to-point extender system or may over-laid on the standard 100 Mbps/1 Gbps TCP/IP network.

The ServSwitch™ family from BLACK BOX—the one-stop answer for all your KVM switching needs!

*

This manual will tell you all about your new ServSwitch DTX5000 system, including how to install, operate and troubleshoot it. For an introduction to the ServSwitch DTX5000 system see Chapter 2. The ServSwitch DTX5000 product codes covered in this manual are as follows:

DTX5000-R DTX5000-T

**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.

EUROPEAN UNION DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in the European standard EN55022. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio-frequency energy, and if not installed and used in accordance with the instructions, might cause harmful interference to radio or television reception.

However, there is no guarantee that harmful interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, you can correct the interference with one or more of the following measures:

- a. Reorient or relocate the receiving antenna.
- b. Increase the separation between the equipment and the receiver.
- c. Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- d. Consult the supplier or an experienced radio/TV technician for help.

This equipment has also been found to comply with European standards EN50082 and EN60950.



Other Agency Approvals

USA (UL, FCC)

Canada (cUL, ICES-003)

European Union (CE)

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1. Specifications

During the course of this product's lifetime, modifications might be made to its hardware or firmware that could cause these specifications to change without notice.

DTX5000-R Product Specifications

Network

Ethernet Standard	Ethernet II
-------------------	-------------

Extension Ports

Number	1
--------	---

Connectors	RJ45
------------	------

User Ports

Number	PS/2: 2; USB: 4; DVI-I video: 1; audio microphone: 1; audio line out: 1; power jack: 1
--------	--

Type	PS/2, USB Type A, DVI-I video
------	-------------------------------

Connectors	6-pin miniDIN, PS/2 keyboard and mouse; USB Type A, USB keyboard and mouse; DVI-I, female; 3.5 mm stereo audio jacks, line out and mic; 2.5 mm DC power jack.
------------	---

Encryption

Type	Authenticated SSL
------	-------------------

Update Port

Number	1
--------	---

Type	Three-wire Serial interface: RX, TX, GND via 16450-compatible UART
------	--

Connectors	9-pin D-Shell (DB9)
------------	---------------------

Dimensions

H x W x D	26.5 x 210 x 130 mm (1.04 x 8.27 x 5.12 in)
-----------	---

Weight	0.7 Kg (1.54 lb) without packaging, cables, power supply and literature
--------	--

Heat Dissipation	22 W/H
------------------	--------

Power Consumption	20 W (including power supplied to USB ports)
-------------------	--

AC-input power	100-240 V AC
----------------	--------------

AC-input current rating	1 A
-------------------------	-----

DTX5000-R Product Specifications (continued)

AC-frequency	50/60 Hz
Operating Temperature	0° to 35° Celsius (32° to 95° Fahrenheit)
Storage Temperature	-20° to 60° Celsius (-4° to 140° Fahrenheit)
Transit Temperature	-30° to 60° Celsius (-22° to 140° Fahrenheit)
Operating Humidity	10 to 90% noncondensing
Storage Humidity	5 to 95%

Supported Hardware

Peripherals	PS/2 keyboard and mouse, USB keyboard and mouse, speakers, microphone
Keyboard	Standard 104/105/109 keyboards for PC, Macintosh, and Sun USB keyboards for PC, Macintosh and Sun Default keyboard drivers are fully supported for Microsoft Windows, MacOS, Solaris and Redhat Linux
Mouse	2-, 3-, and 5-button; scroll and tilt wheel
Mass Storage Devices	All Mass Storage Class devices that use: SCSI Mass Storage subclass Bulk Only Transfer Protocol
Video Resolution	CRT 1280 x 1024 @ 60 Hz LCD 1280 x 1024 @ 60 Hz
Video Standard	DDC version 2B
Color Depth	24 Bit
Audio Standard	PC99
Audio Sampling	44.1 kHz over a single channel at a resolution of 16 bits.
Target Sync Types (Analog output only)	Separate horizontal and vertical
Safety and EMC Approvals and Markings	UL, FCC, cUL, CE

DTX5000-T Product Specifications**Network**

Ethernet Standard	Ethernet II
-------------------	-------------

Extension Ports

Number	1
Connectors	RJ45
User Ports	
Number	USB: 2; DVI-I video: 1; audio microphone: 1; audio line out: 1
Type	USB Type A, DVI-I video
Connectors	USB, male; DVI-I, male; 3.5 mm stereo audio jacks, line out and mic; 2.5 mm DC power jack.
Encryption	
Type	Authenticated SSL
Dimensions	
H x W x D	68 x 21 x 153 mm (2.68 x 0.83 x 6.02 in)
Weight	0.3 Kg (0.66 lb) including cables
Heat Dissipation	22 W/H
Power Consumption	6 W
AC-input power	100-240 V AC
AC-input current rating	1 A
AC-frequency	50/60 Hz
DC-input power	5 V
DC-input current rating	1.1 A
Operating Temperature	0° to 35° Celsius (32° to 95° Fahrenheit)
Storage Temperature	-20° to 60° Celsius (-4° to 140° Fahrenheit)
Transit Temperature	-30° to 60° Celsius (-22° to 140° Fahrenheit)
Operating Humidity	10 to 90% noncondensing
Storage Humidity	5 to 95%
Video Resolution	CRT 1280 x 1024 @ 60 Hz LCD 1280 x 1024 @ 60 Hz
Video Standard	DDC version 2B
Color Depth	24 Bit
Audio Standard	PC99
Audio Sampling	44.1 kHz over a single channel at a resolution of 16 bits

Playout Buffer (jitter)	350 ms
Target Sync Types (Analog input only)	Separate horizontal and vertical; sync on green (as used on SGI and HP9000)
Safety and EMC Approvals and Markings	UL, FCC, cUL, CE

1.1 Factory Default Settings

DTX5000-R

Name	RX_<MAC address>
IP Address	192.168.13.1
Default Gateway	0.0.0.0
Netmask	255.255.255.0
OSD Hotkey Sequence	PRINT SCREEN
OSD Inactivity Timer	00 hours 10 minutes
OSD Inactivity Check Box	Enabled
Session Inactivity Timer	00 hours 10 minutes
Session Inactivity Check Box	Disabled
Session Retry Timeout	30 seconds

DTX5000-T

Name	TX_<MAC address>
IP Address	192.168.13.2
Default Gateway	0.0.0.0
Netmask	255.255.255.0
Video	DVI

2. Product Overview

2.1 Features and Benefits

The ServSwitch DTX5000 provides users with a full computer desktop experience from anywhere on the corporate TCP/IP network, while maintaining the computers securely housed in a corporate data center. This desktop experience includes access for the desktop user to keyboard, mouse, video, audio and USB mass storage devices.

The ServSwitch DTX5000 system consists of:

- The DTX5000-T that connects externally to the remote computer
- The DTX5000-R that is located at the user's desk

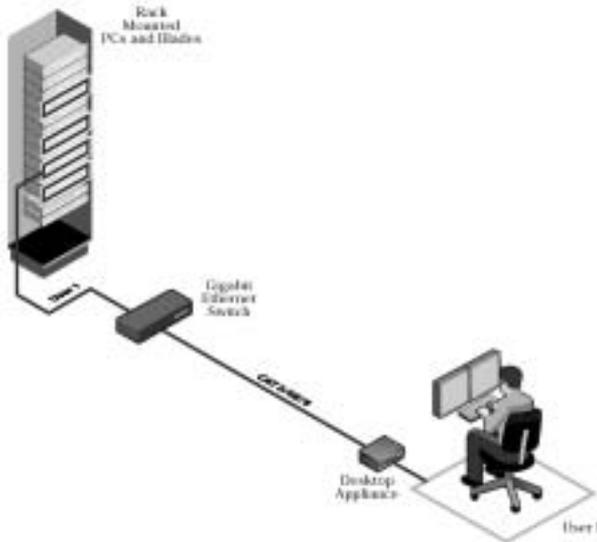


Figure 2-1. ServSwitch DTX5000 Basic System

DTX5000-T (Transmitter)

The DTX5000-T connects to the video, audio and USB ports of the computer and is available as a Transmitter that attaches externally to the remote computer.

The Transmitter is attached directly to the remote computer and draws its power directly from two USB ports on the remote computer. This removes the need for additional power supply connections at the rack.

NOTE:

If the remote computer cannot supply the required power or if two USB connections are not available, an external power supply can be obtained from Black Box.

The Transmitter captures, compresses and encrypts the computer's media streams and transmits them to the DTX5000-R (Receiver) over a standard TCP/IP network.

DTX5000-R (Receiver)

The Receiver enables the desktop user's keyboard, mouse, video, audio and mass storage devices to connect to the ServSwitch DTX5000 system. It is available as a desktop user station.

Automatic Connection

When the Receiver is powered up, a connection is automatically established with the remote computer via the Transmitter. No intervention is required from the user. See "Accessing the System" on page 21.

Ethernet addressing

The Receiver and the Transmitter are IP-addressable devices; this gives you the flexibility to locate back-racked computers anywhere within your enterprise and at any distance from your desktop users. The Receiver and the Transmitter use standard network protocols to transfer data streams between the remote computer and the peripheral devices located at the user's desk. The ServSwitch DTX5000 system can operate on a network connection of 10 Mbps, 100 Mbps or 1 Gbps. For optimum performance a 1 Gbps connection is recommended. For more information see Chapter 3.

Multiplatform support

The Transmitter is connected to the remote computer via USB connectors. This enables the ServSwitch DTX5000 system to interoperate seamlessly with PC, Sun and Macintosh target computers. PC, Sun and Macintosh USB keyboards can be connected to the Receiver. PS/2 keyboards and mice can also be used.

You can attach the ServSwitch DTX5000 system to computers running the following operating systems:

- Microsoft Windows
- Redhat Linux
- Solaris
- MacOS

The default keyboard drivers for these operating systems are fully supported by the ServSwitch DTX5000 system.

Flexible installation

The Receiver can be desk mounted or mounted on the back of a monitor. Installation requires no new drivers or software. Standard UTP cabling makes installation simple and keeps costs low.

Security

The ServSwitch DTX5000 system supports Secure Sockets Layer (SSL) over a TCP/IP connection. All media streams transmitted between the Receiver and the Transmitter are encrypted. In addition, password protection is provided to control access to all administration functions. For example, network configuration information, see "Access Control" on page 29.

OSD

The Receiver includes an On-Screen Display (OSD) that allows you to view information about the configuration of your ServSwitch DTX5000 system. See "The OSD" on page 22.

Operations administration and maintenance

The Receiver incorporates a Serial Interface menu that allows you to perform administration and maintenance tasks for both the Receiver and the Transmitter. Examples of tasks you can perform include, configuration of network settings and firmware Flash upgrades. See “The Serial Interface” on page 23.

Flash upgradeable

Upgrade your firmware at any time using the XMODEM or HTTP protocols to ensure that your ServSwitch DTX5000 system is always running the most current version available. Both the Transmitter and the Receiver are Flash upgradeable. See “Flash Upgrading your ServSwitch DTX5000 System” on page 33.

Support for keyboards and mice

USB and PS/2 keyboards and mice are fully supported by the ServSwitch DTX5000 system. The system also allows for mix and match of USB and PS/2 peripherals. For example, it is possible to use a USB keyboard in conjunction with a PS/2 mouse. The default keyboard and mouse drivers of the remote computer are fully supported. This enables the ServSwitch DTX5000 system to support 2-, 3- and 5-button mice with scroll- and tilt-wheel capability. Composite mouse and keyboard devices are also supported.

USB support

The ServSwitch DTX5000 system is compatible with the USB 2.0 standard, and provides support for low-, full- and high-speed USB devices. The Receiver provides four USB 2.0 compliant ports that can be used to access USB removable drives and CD-ROM drives, keyboards, mice and USB hubs. Hot plugging of USB devices is supported.

NOTE:

A hub cannot be used to expand the number of USB ports available.

Virtual media

Mass storage devices, such as removable drives and external CD-ROM drives, can be attached to the Receiver and will function as if they are directly connected to the remote computer. Data can be both read from and written to these mass storage devices. You can connect both a removable drive and an external drive at any one time to the Receiver.

NOTE:

It is not possible to connect two mass storage devices of the same type to the Receiver at any one time. For example, you cannot connect two removable drives to the Receiver.

The transfer speed between the mass storage device and the remote computer is dependant on the Ethernet network. A 1 Gbps connection is required for high-performance virtual media transfer. The system is capable, however, of operating over a 100 Mbps Ethernet connection. By default, 20 per cent of the available connection bandwidth is allocated to virtual-media transfer.

The following mass storage devices are supported:

- Removable drives
- External USB hard drives
- External USB CD-ROM drives

Hot plugging of USB mass storage devices is supported.

NOTE:

The ServSwitch DTX5000 system supports the default drivers for mass storage devices.

Audio

The ServSwitch DTX5000 system supports CD-quality stereo from the remote computer to peripheral speakers, and mono-quality audio from a peripheral microphone to the remote computer.

Video

Video of 24-bit color depth up to a resolution of 1280 x 1024 at 60 Hz is supported by the ServSwitch DTX5000 system. Both CRT and flat-panel LCD monitors are supported, and can be connected to the ServSwitch DTX5000 system via a DVI-I video connector. VGA monitors can be attached to the system by using a DVI to VGA adaptor. The system supports DDC version 2B.

Reduced Total Cost of Ownership (TCO)

The ServSwitch DTX5000 system delivers significantly lower TCO when compared to traditional distributed computer systems. Centralized maintenance enables greater security and convenience as well as reduced workplace disruption and down-time. IT administration costs are also significantly reduced by housing all PCs in one central location. Relocating the computer away from the user frees up valuable office space and reduces desktop power and heating, ventilation and air conditioning (HVAC) requirements.

2.2 Safety Precautions

To avoid potential video and/or keyboard problems when using Black Box products:

- If the building has 3-phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.

To avoid potentially fatal shock hazard and possible damage to equipment, please observe the following precautions:

- Do not use a 2-wire extension cord in any Black Box product configuration.
- Test AC outlets at the computer and monitor for proper polarity and grounding.
- Use only with grounded outlets at both the computer and monitor. When using a backup Uninterruptible Power Supply (UPS), power the computer and the Transmitter off the same supply.

NOTE:

The AC inlet is the main disconnect.

3. Installation

3.1 Getting Started

Before installing your ServSwitch DTX5000 system, refer to the list below to ensure that you have all the items necessary for installation.

Needed to install the ServSwitch DTX5000 system

- DTX5000-R Receiver
- DTX5000-T Transmitter
- External power supply for the Receiver
- IEC power cord
- ServSwitch DTX5000 Quick Installation Guide
- UTP cable (not supplied)
- Three-wire serial cable or null modem cable (not supplied)

Needed for non-standard installations

To connect a VGA monitor to the Receiver:

- A DVI to VGA adaptor (not supplied)

To connect the Transmitter to a remote computer that has VGA video output:

- A VGA to DVI-I adaptor (not supplied)

To connect the Transmitter to a remote computer that has DVI-D video output:

- A DVI-D to DVI-I adaptor (not supplied)

3.2 Mounting Option

The Receiver features the following mounting option that allows you to adapt easily to most work environments:

- Mounting to the rear of a flat-panel monitor via a mounting plate accessory

NOTE:

Mounting accessories are ordered separately. Contact Black Box for more information.

3.3 Installation Options

CAUTION:

To reduce the risk of electric shock or damage to your equipment, disconnect the power from the Receiver by unplugging the power supply from the electrical outlet.

CAUTION:

To reduce the risk of electric shock or damage to your equipment, power up the remote computer and the Receiver in the sequence described in the following procedures.

You can install the ServSwitch DTX5000 system in one of two ways:

1. Point-to-point
2. Networked

Point-to-point installation

The following instructions will enable you to install your ServSwitch DTX5000 system in a point-to-point configuration. In a point-to-point configuration no administrator setup of the Transmitter or the Receiver is required. This enables you to install the system quickly, directly out-of-the-box. However, if you choose the point-to-point configuration you can install only one Transmitter and Receiver pair on a subnet. If you use this configuration you must also locate both the Transmitter and the Receiver on the same subnet.



Figure 3-1. Point-to-point Installation

To connect the Transmitter:

1. Power down the remote computer.
2. Connect the video connector on the Transmitter to the appropriately labeled port on the back of the computer.

NOTE:

A VGA-only computer can be connected to the Transmitter using a VGA to DVI-I adaptor. You must configure the Transmitter's video settings for VGA through the Serial Interface menu. For more information see "Configuring Video Input Settings" on page 40.

3. The Transmitter has two USB connectors. Connect each of these connectors to a corresponding USB port on the remote computer.
4. Connect the Transmitter's audio and microphone connectors to the appropriately labeled ports on the back of the computer.
5. Connect the UTP cable to the Transmitter's RJ45 connector.
6. Power up the computer.
7. Route the other end of the UTP cable to the location you have chosen for the Receiver. If necessary you can extend the UTP cable via junctions or a hub - subject to normal Ethernet cabling practices.

The Transmitter draws electrical power from two USB ports on the remote computer. One USB port is not sufficient to power the Transmitter. If you have only one USB port on your remote computer, you will need to order an external power supply for the Transmitter from Black Box



Figure 3-2. Transmitter

To connect the Receiver:

1. Connect your keyboard, monitor, mouse and other peripherals cables to the appropriately labeled ports on the back of the Receiver.
2. Connect the UTP cable to the RJ45 port on the back of the Receiver.
3. Power up the Receiver. A connection will be automatically established with the remote computer.

NOTE:

VGA monitors can be connected to the Receiver by using a DVI-I to VGA adaptor.

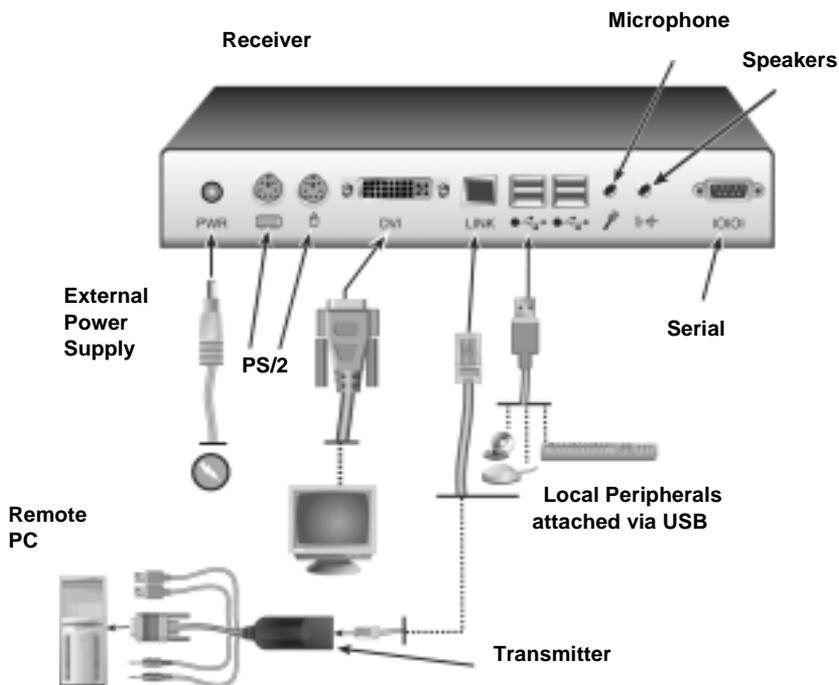


Figure 3-3. Receiver and Transmitter Installation

Connecting Power

The Receiver features an external power supply. A DC power jack is located on the rear of the Receiver.

NOTE:

Use only the power supply provided by Black Box.

To connect power to the Receiver:

1. Plug the external power supply's 2.5mm connector into the DC power jack on the rear of the Receiver.
2. Connect the detachable IEC power cord to the power supply.
3. Plug the IEC power cord into an appropriate wall outlet.

Networked Installation

The following instructions will enable you to install your ServSwitch DTX5000 system in a networked configuration. In this installation, the Transmitter and the Receiver are both connected to an Ethernet network. Communication between the Transmitter and the Receiver takes place over IP.

A networked installation enables you to:

- Install multiple ServSwitch DTX5000 systems on the same subnet
- Locate a Transmitter on a different subnet from the Receiver

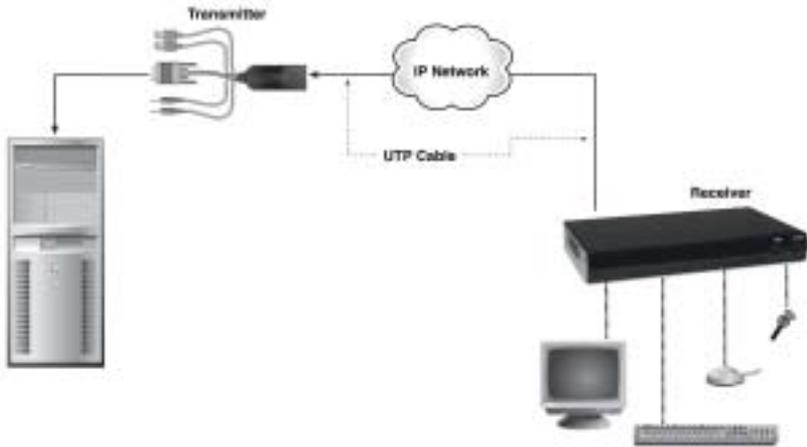


Figure 3-4. Networked Installation

The ServSwitch DTX5000 system has been pre-configured with factory-default network settings. If you install only one ServSwitch DTX5000 system on a subnet, you do not need to change these default network settings. If you install more than one system on the same subnet, you will need to re-configure the default network settings. This can be done via the serial port. See “The Serial Interface” on page 23.

Table 1.1: Default network settings

Component	IP Address	Type	Default Gateway	Subnet Mask
Receiver	192.168.13.1	static	0.0.0.0	255.255.255.0
Transmitter	192.168.13.2	static	0.0.0.0	255.255.255.0

To install the ServSwitch DTX5000 System on a network:

1. Connect the Transmitter to the remote computer as described previously in “Point-to-point installation” on page 16. Connect one end of the UTP cable to the Transmitter’s RJ45 connector. Connect the other end of the UTP cable to the Ethernet network.
2. Connect the Receiver to the peripherals as described above in “Point-to-point installation” on page 16. Use a length of UTP cable to connect the Receiver to the Ethernet network via the RJ45 connector on the rear of the Receiver.
3. Power up the Receiver. A connection will be automatically established with the remote computer.

4. Use the Serial Interface to re-configure the network settings for the Transmitter. For more information on how to do this see, “Configuring Network Settings” on page 25.

NOTE:

If the Receiver and Transmitter are to be located on different subnets, configure their network settings before you connect to the network.

NOTE:

If there are already Transmitter/Receiver pairs operating on the subnet, set the network configurations of new Transmitter/Receiver pairs before connecting them to the network.

5. Use the Serial Interface to re-configure the network settings for the Receiver. For more information on how to do this see, “Configuring Network Settings” on page 25.
6. Repeat this procedure for each Transmitter and Receiver pair you wish to install on the network.

4. Operations

4.1 Overview

Operating a computer through the ServSwitch DTX5000 system is no different than working directly connected to your computer. All peripherals operate as if directly connected, even though the computer is located at a distance. When you power up the Receiver, a connection is automatically established with the computer.

While the default settings of your ServSwitch DTX5000 system will work with most systems, you may choose to change settings to better fit your system. Internal settings such as connection settings and hotkey sequences can be configured via the Serial Interface. See “The Serial Interface” on page 23. You can also upgrade the ServSwitch DTX5000 system via the Serial Interface. The On-Screen Display (OSD) displays system settings and information about your connected Transmitter.

LED Identification

Front panel

There are two blue LEDs on the front panel of the Receiver. The PWR LED will light up when the Receiver has been powered up. The ACTIVE LED will light up when the Receiver has established a connection with the Transmitter.

Rear panel

Two LEDs are built into both the RJ45 connector on the rear of the Receiver, and into the RJ45 connector on the Transmitter. The following table illustrates their operation:

Table 3.1: RJ45 Connector LEDs

LED	Indication	Meaning
LED 1	Green static	Linked at 1 Gbps
	Green flashing	Linked at 10 Mbps/100 Mbps
	Green off	No Link
LED 2	Yellow static	Linked but no activity
	Yellow flashing	Transmit/receive activity

4.2 Accessing the System

When the Receiver is powered up, it will automatically initiate a connection with the remote computer.

To access the remote computer:

1. Power up the Receiver.
2. A series of messages will be displayed on the screen to inform you of the progress of the connection.
3. You will be able to interact with the remote computer as if it were located at your desk.

NOTE:

If the remote computer has been powered down, the Receiver will not be able to establish a connection.

4.3 The OSD

The Receiver incorporates an On-Screen Display (OSD) that allows you to view information about the configuration of your ServSwitch DTX5000 system.

To access the OSD:

Press **Print Screen**.

If you wish, you can designate a different key or combination of keys (hotkeys) to access the OSD. See “Configuring the OSD Hotkey Sequence” on page 40.

NOTE:

The OSD will clear after a defined period of inactivity. To reactivate the OSD, enter a valid hotkey sequence. See “OSD Inactivity Timeout” on page 42.

Displaying system information using the OSD

The OSD enables you to display the firmware release of the Receiver and the Transmitter. For optimum performance, keep your firmware current. For more information, see “Flash Upgrading your ServSwitch DTX5000 System” on page 33. The OSD also enables you to view the IP address and MAC address of both the Receiver and the Transmitter.

To display system information:

1. Press **Print Screen**. The *Information* dialog box will appear. By default, the *Information* dialog box displays system information for your Receiver.



Figure 4-1. The Information dialog box

2. Click the *Remote* radio button to view system information for your Transmitter. The *Information* dialog box will update to display system information for your Transmitter.
3. Click the *Local* radio button to view the system information for your Receiver again.

If there is no Transmitter connected, the *Remote* radio button option will display as *No Target*.

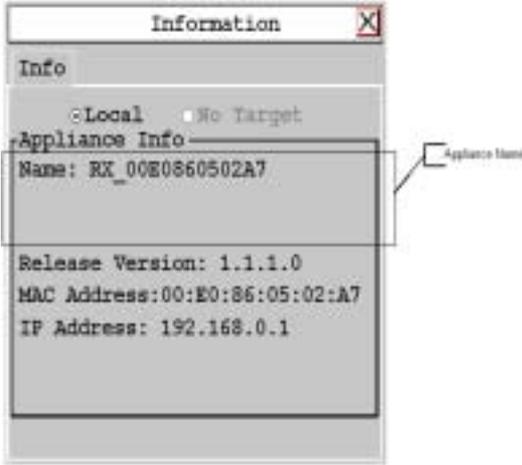


Figure 4-2. No Transmitter connected

To dismiss the OSD:

On the keyboard, press **ESC** or use the mouse to click the 'X' button on the top right-hand corner of the OSD dialog box.

4.4 The Serial Interface

The Receiver incorporates a Serial Interface that allows you to:

- Configure network settings for the Receiver
- Configure network settings for the Transmitter
- Set or change passwords
- Upgrade your firmware for the Receiver and Transmitter
- Reset to factory defaults
- Configure hotkeys
- Set a session time-out value
- Configure the OSD inactivity timer

Accessing the Serial Interface

You can access the Serial Interface via the serial port on the back of the Receiver. All terminal commands are executed through a terminal or PC running HyperTerminal® emulation software or equivalent.

By default, two passwords are required to access the ServSwitch DTX5000 system via the Receiver. One password controls access to the Receiver, the other password controls access to the Transmitter. In both cases, the default password is "password". For information on how to change the default password, see "Access Control" on page 29.

Items needed to access the Serial Interface

- Networked computer with a serial port
- Null-modem serial cable (male DB9) or three-wire serial cable
- HyperTerminal emulation software or equivalent

To access the Serial Interface:

1. Connect one end of the serial cable to the serial port on the back of the Receiver.
2. Connect the other end of the serial cable to the serial port of your PC.
3. Launch HyperTerminal.
4. Configure the HyperTerminal session for 57600 bits per second, 8 data bits, no parity, 1 stop bit and no flow control.

NOTE:

Software (XON/XOFF) flow control is supported. However, it should not be used when using XMODEM.

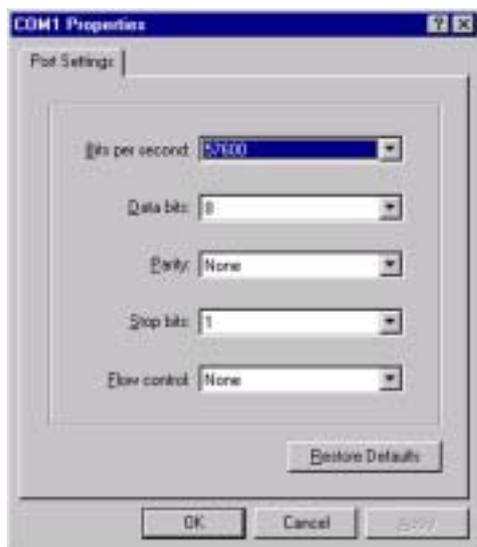


Figure 4-3. Com1 Properties

5. Confirm the HyperTerminal settings.
6. Press **Enter** to display the Serial Interface menu. The *Appliance Selection Menu* will be displayed.

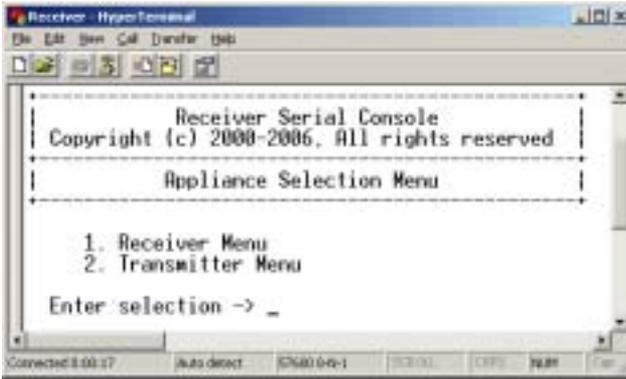


Figure 4-4. Appliance Selection Menu

7. Select Receiver or Transmitter. You will be prompted to enter a password.
8. Type the password and press **Enter**.

NOTE:

If there is no Transmitter connected to the Receiver, an error message will display and you will be returned to the *Appliance Selection Menu*.

Navigating the Serial Interface

The Serial Interface is driven by a series of simple nested menus. To navigate through the Serial Interface, simply type the number or letter that corresponds to the option you wish to choose and press **Enter**. This action will bring you to a sub-menu or to a screen where you can make configuration changes. To exit a menu or screen and to confirm any configuration changes you have made, type 0 (zero) and press **Enter**. To navigate back up through the menus, continue to type 0 and press **Enter** at each screen.

4.5 Configuring Network Settings

The ServSwitch DTX5000 system is shipped with default network settings pre-configured for your Receiver and Transmitter. For more information see “Networked Installation” on page 18. You can re-configure the default network settings for your system using the Serial Interface. If you wish, you can place the Receiver on a different subnet from the Transmitter.

NOTE:

Static addressing is the only IP addressing method supported.

To configure network settings for the Receiver:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.

3. Type the password and press **Enter**. The Receiver *Main Menu* will appear.

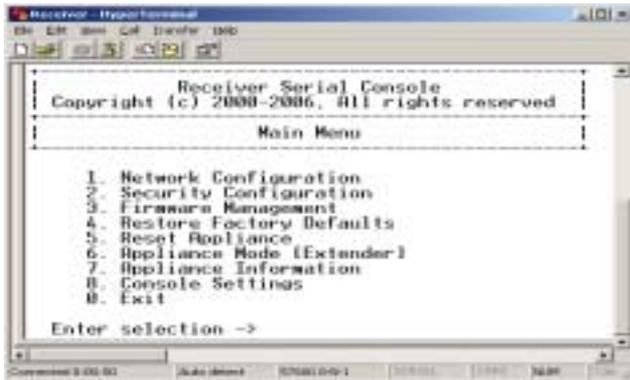


Figure 4-5. Receiver Main Menu

4. Choose *Network Configuration*. The *Network Configuration Menu* will appear.

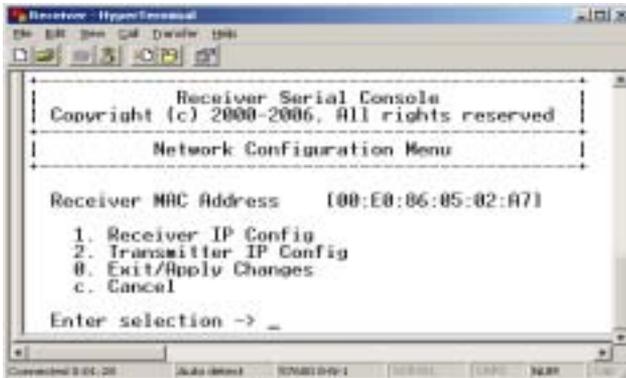


Figure 4-6. Receiver Network Configuration Menu

- Choose *Receiver IP Config*. The *Receiver IP Configuration Menu* will appear. The current network settings are visible here.

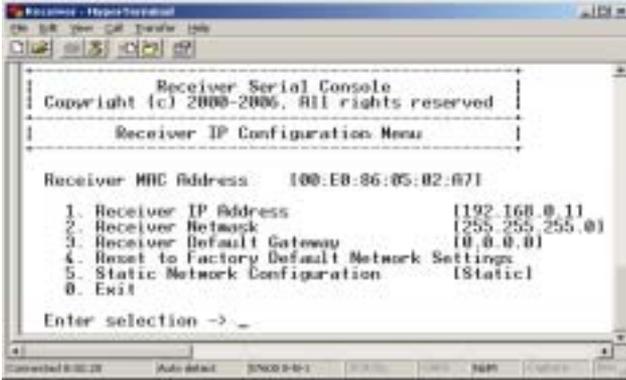


Figure 4-7. Receiver IP Configuration Menu

NOTE:

The Reset option in the *Receiver IP Configuration Menu* applies only to network settings.

- Choose *Receiver IP Address*.
 - Type a valid IP address. Press **Enter** to return to the *Receiver IP Configuration Menu*.
 - Choose *Receiver Netmask*.
 - Type a valid Receiver Netmask. Press **Enter** to return to the *Receiver IP Configuration Menu*.
 - Choose *Receiver Default Gateway*.
 - Type a valid Receiver Default Gateway. Press **Enter** to return to the *Receiver IP Configuration Menu*.
 - Type 0 (zero) and press **Enter** to return to the *Network Configuration Menu*.
 - If you made a mistake and do not wish to save the changes you made to the network settings type C and press **Enter**.
 - To confirm your changes and apply those settings, type 0 (zero) and press **Enter**.
-

NOTE:

Changes to network configurations are applied only after you exit the *Network Configuration Menu*

- If you changed the IP Address, the Receiver will now automatically reset to apply the new network configuration. During reset, the Receiver will drop its connection to the Transmitter. You will be automatically returned to the *Appliance Selection Menu* screen. Connection will be restored.

To configure network settings for the Transmitter:

NOTE:

You must also enter changes to the Transmitter IP address via the Receiver Network Configuration menu.

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Transmitter *Main Menu* will appear.

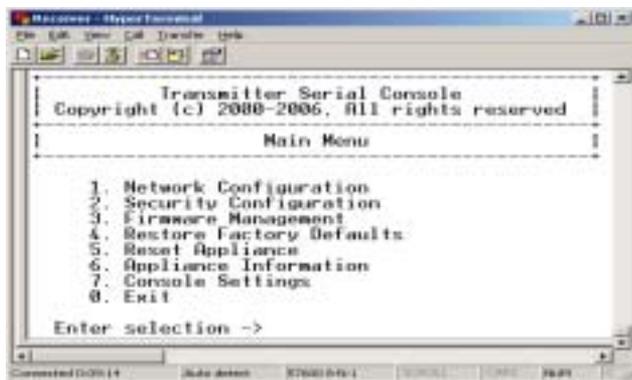


Figure 4-8. Transmitter Main Menu

NOTE:

The Reset option in the *Transmitter Main Menu* applies only to network settings.

4. Choose *Network Configuration*. The *Network Configuration Menu* will appear.

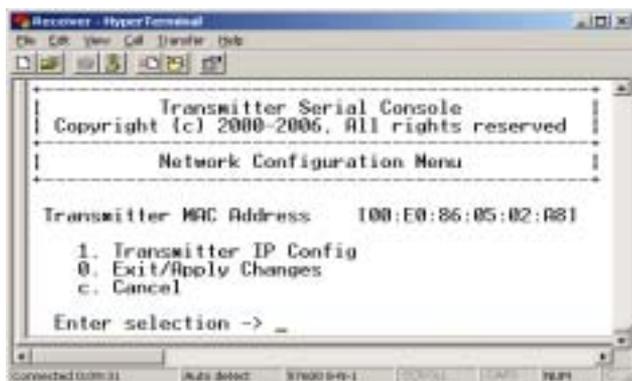


Figure 4-9. Network Configuration Menu

- Choose *Transmitter IP Config*. The *Transmitter IP Configuration Menu* will appear.

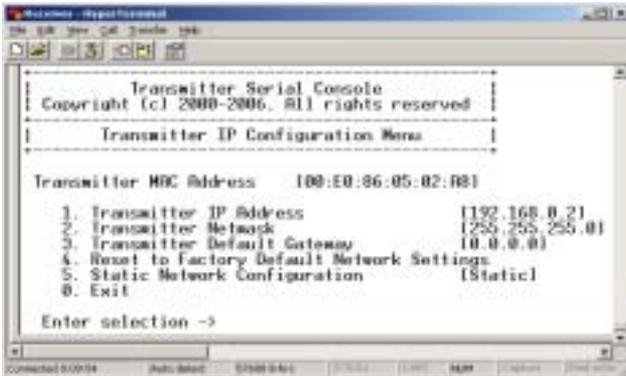


Figure 4-10. Transmitter IP Configuration Menu

- Choose *Transmitter IP Address*.
- Type a valid IP address. Press **Enter** to return to the *Transmitter IP Configuration Menu*.
- Choose *Transmitter Netmask*.
- Type a valid Transmitter Netmask. Press **Enter** to return to the *Transmitter IP Configuration Menu*.
- Choose *Transmitter Default Gateway*.
- Type a valid Transmitter Default Gateway. Press **Enter** to return to the *Transmitter IP Configuration Menu*.
- Type 0 (zero) and press **Enter** to return to the *Network Configuration Menu*.
- If you made a mistake and do not wish to save the changes you made to the network settings type C and press **Enter**.
- To confirm your changes and apply those settings type 0 (zero) and press **Enter**.
- If you changed the IP address, the Transmitter will now automatically reset to accept the new network configuration. During reset the Transmitter will drop the connection to the Receiver. A system message will appear that states “Connection to the Transmitter is lost”. You will be automatically returned to the *Appliance Selection Menu* screen, and the connection will be restored.

4.6 Access Control

By default, two passwords are required to access the ServSwitch DTX5000 system via the Serial Interface. One password is for access to the Serial Interface menus that control the Receiver. The other password is for access to the Serial Interface menus that control the Transmitter. In both cases, the default password is “password”.

NOTE:

Each password must consist of ASCII characters and contain between 6 and 64 characters.

Access control for the Receiver

You can change the password settings for the Receiver through the Serial Interface via the Receiver *Security Configuration Menu*.

To access the Receiver Security Configuration Menu:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Receiver *Main Menu* will appear.
4. Choose *Security Configuration*. The *Security Configuration Menu* will appear.

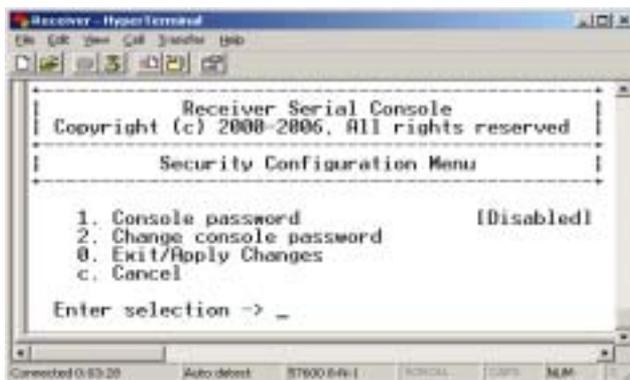


Figure 4-11. The Receiver Security Configuration Menu

To disable or enable the Receiver password:

1. Choose *Console Password* on the *Security Configuration Menu* and press **Enter**. If a password had been enabled, this action will disable the password.
2. If a password had been disabled, you will be prompted to enter a password.
3. Type the new password and press **Enter**.
4. Confirm the new password. If successful, you will see a message confirming that the new password has been set.
5. To save your changes and exit the menu, type 0 (zero) and press **Enter**.

To change the Receiver password:

1. Choose *Change Console Password* on the *Security Configuration Menu*. You will be prompted to enter your current password.
2. Type your current password and press **Enter**. You will be prompted to enter the new password.
3. Type the new password and press **Enter**.
4. Confirm the new password. If successful, you will see a message confirming that the new password has been set.
5. To save your changes and exit the menu, type 0 (zero) and press **Enter**.

If you lose your Receiver password:

If you lose your Receiver password, you can reset the system to the default password with the help of Black Box Technical Support.

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu.
3. You will be prompted to enter your current password.
4. Type ??????? (six question marks) and press **Enter**. The Serial Interface will generate a code and display it to you. The code is a 16 character hex sequence. The Serial Interface will also prompt you to enter a *Key*.



Figure 4-12. Password Reset Mode

5. Contact Black Box Technical Support to obtain the *Key*. The Technical Support Specialist will ask you for the 16 character hex code. Read out the code exactly as it appears on the Serial Interface. The Technical Support Specialist will now give you another 16 character hex sequence.
6. In the Serial Interface at the *Key* prompt, type the 16 character hex sequence provided to you by Black Box Technical Support. Press **Enter**.
7. The default password is now active.

For information on how to change your password, see “Access control for the Receiver” on page 29.

Access control for the Transmitter

You can change the password settings for the Transmitter through the Serial Interface using the Transmitter *Security Configuration Menu*.

To access the Transmitter *Security Configuration Menu*:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Transmitter *Main Menu* will appear.

- Choose *Security Configuration*. The *Security Configuration Menu* will appear.



Figure 4-13. Transmitter Security Configuration Menu

To disable or enable the Transmitter password:

- Choose *Console Password* on the *Security Configuration Menu* and press **Enter**. If a password has been enabled, this action will disable the password.
- If a password has been disabled, you will be prompted to enter a password.
- Type the new password and press **Enter**.
- Confirm the new password. If successful, you will see a message confirming that the new password has been set.
- To save your changes and exit the menu, type 0 (zero) and press **Enter**.

To change the Transmitter password:

- Choose *Change Console Password* on the *Security Configuration Menu*. You will be prompted to enter your current password.
- Type your current password and press **Enter**. You will be prompted to enter the new password.
- Type the new password and press **Enter**.
- To confirm the new password and exit the screen, type 0 (zero) and press **Enter**.

If you lose your Transmitter password:

If you lose your Transmitter password, you can reset the system to the default password with the help of Black Box Technical Support.

- Activate the serial menu as described in “Accessing the Serial Interface” on page 23.
- Choose option 2 to access the Transmitter menu.
- You will be prompted to enter your current password.
- Type ??????? (six question marks) and press **Enter**. The Serial Interface will generate a code and display it to you. The code is a 16 character hex sequence. The Serial Interface will also prompt you to enter a *Key*.
- Contact Black Box Technical Support to obtain the *Key*. The Technical Support Specialist will ask you for the 16 character hex code. Read out the code exactly as it appears on the Serial Interface. The Technical Support Specialist will now give you another 16 character hex sequence.

6. In the Serial Interface at the *Key* prompt, type the 16 character hex sequence provided to you by Black Box Technical Support. Press **Enter**.
7. The default password is now active.

For information on how to change your password see “Access control for the Transmitter” on page 31.

4.7 Flash Upgrading your ServSwitch DTX5000 System

You can Flash upgrade your Receiver and Transmitter. You can Flash upgrade your ServSwitch DTX5000 system using either XMODEM or HTTP. The Receiver and Transmitter are upgraded separately using individual upgrade files. The upgrade files are supplied by Black Box. For optimum system performance keep your firmware versions current.

NOTE:

Do not use software (XON/XOFF) flow control when using XMODEM.

To Flash upgrade your Receiver using XMODEM:

1. Download the Receiver upgrade file from Black Box.
2. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
3. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
4. Type the password and press **Enter**. The Receiver *Main Menu* will appear.
5. Choose *Firmware Management*. The *Firmware Management Menu* will appear.



Figure 4-14. Receiver Firmware Management Menu

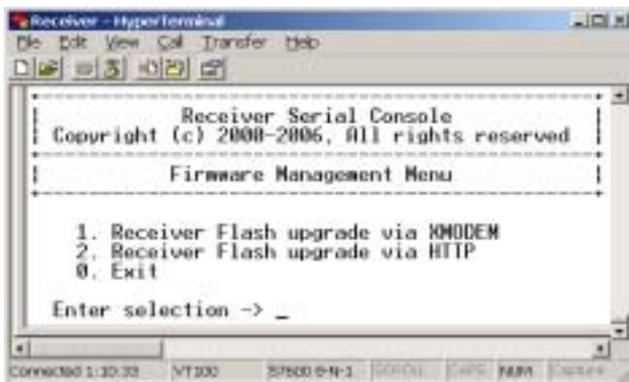
6. Choose *Receiver Flash Upgrade Via XMODEM*. The connection to the Transmitter will be dropped.
7. Specify the location of the upgrade file and initiate the file transfer.
8. When the transfer has completed, a message will display stating “Firmware update successful. Resetting Appliance...”
9. The connection to the Transmitter will be restored.

NOTE:

If the Receiver determines that the upgrade file is invalid, the Receiver cancels the upgrade and maintains the previous firmware version. A message will display indicating that the firmware upgrade has failed.

To Flash upgrade your Receiver using HTTP:

1. Download the Receiver upgrade file from Black Box.
2. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
3. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
4. Type the password and press **Enter**. The Receiver *Main Menu* will appear.
5. Choose *Firmware Management*. The *Firmware Management Menu* will appear.

**Figure 4-15. Receiver Firmware Management Menu**

6. Choose *Receiver Flash Upgrade Via HTTP*. The connection to the Transmitter will be dropped. You will be prompted to enter the URL for the upgrade file.
7. Enter the URL for the upgrade file using the following syntax:
http://<server ip address>[:server port]/<upgrade file path>
For example:
http://192.168.0.1:8080/RX.dld

NOTE:

If the server is set up on standard port 80, the port information can be omitted.

8. To initiate the file transfer press **Enter**.
9. When the transfer has completed, a message will display stating “Firmware update successful. Resetting Appliance...”
10. The connection to the Transmitter will be restored.

NOTE:

If the Receiver determines that the upgrade file is invalid, the Receiver cancels the upgrade and maintains the previous firmware version. A message will display indicating that the firmware upgrade has failed.

To Flash upgrade your Transmitter using XMODEM:

1. Download the Transmitter upgrade file from Black Box.

2. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
3. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
4. Type the password and press **Enter**. The Transmitter *Main Menu* will appear.
5. Choose *Firmware Management*. The *Firmware Management Menu* will appear.

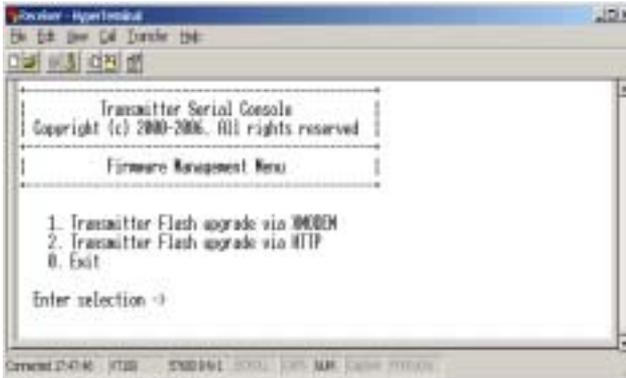


Figure 4-16. Transmitter Firmware Management Menu

6. Choose *Transmitter Flash Upgrade Via XMODEM*.
7. Specify the location of the upgrade file and initiate the file transfer.
8. When the transfer has completed, a message will display stating “Firmware update successful. Resetting Appliance...” During reset the Transmitter will drop the connection to the Receiver. A second system message will appear that states “Connection to the Transmitter is lost”. You will be automatically returned to the *Appliance Selection Menu* screen

NOTE:

If the Transmitter determines that the upgrade file is invalid, the Transmitter cancels the upgrade and maintains the previous firmware version. A message displays indicating that the upgrade has failed.

To Flash upgrade your Transmitter using HTTP:

1. Download the Transmitter upgrade file from Black Box.
2. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
3. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
4. Type the password and press **Enter**. The Transmitter *Main Menu* will appear.

5. Choose *Firmware Management*. The *Firmware Management Menu* will appear.

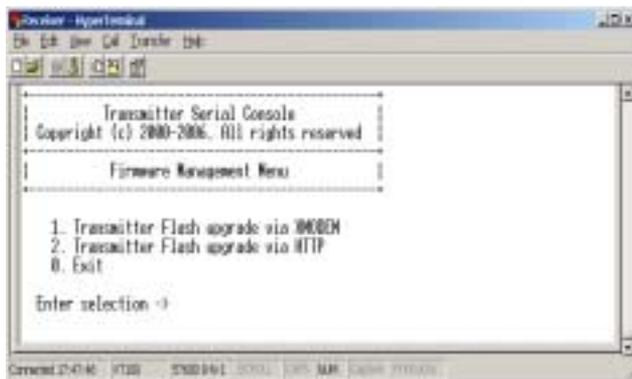


Figure 4-17. Transmitter Firmware Management Menu

6. Choose *Transmitter Flash Upgrade Via HTTP*.
7. You will be prompted to enter the URL for the upgrade file.
8. Enter the URL for the upgrade file using the following syntax:
`http://<server ip address>[:server port]/<upgrade file path>`
 For example:
`http://192.168.0.1:8080/TX.dld`

NOTE:

If the server is set up on standard port 80, the port information can be omitted

9. To initiate the file transfer press **Enter**.
10. When the transfer has completed, a message will display stating "Firmware update successful. Resetting Appliance..." During reset the Transmitter will drop the connection to the Receiver. A second system message will appear that states "Connection to the Transmitter is lost". You will be automatically returned to the *Appliance Selection Menu* screen

NOTE:

If the Transmitter determines that the upgrade file is invalid, the Transmitter cancels the upgrade and maintains the previous firmware version. A message displays indicating that the upgrade has failed.

4.8 Restoring Factory Default Settings

The Serial Interface enables you to easily restore the factory default settings of both the Receiver and the Transmitter. For a full list of the factory default settings, see "Factory Default Settings" on page 9.

NOTE:

Restoring factory default settings will also reset network settings. Before restoring factory default settings, assess whether this is likely to cause conflicts with other devices on the network.

To restore the Receiver factory default settings:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Receiver *Main Menu* will appear.
4. Choose *Restore Factory Defaults*.
5. The Receiver will now automatically reset. You will be automatically returned to the *Appliance Selection Menu* screen.
6. During reset the Receiver will drop the connection to the Transmitter. When reset is complete the Receiver will restore the connection to the Transmitter using the new settings.

To restore the Transmitter factory default settings:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Transmitter *Main Menu* will appear.
4. Choose *Restore Factory Defaults*.
5. The Transmitter will now automatically reset. During reset the Transmitter will drop the connection to the Receiver. A system message will appear that states “Connection to the Transmitter is lost”. You will be automatically returned to the *Appliance Selection Menu* screen. The connection to the Receiver will be restored.

4.9 Resetting the ServSwitch DTX5000 System

To reset the Receiver:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. The Receiver *Main Menu* will appear.

4. Choose *Reset Appliance*. The *Reset Appliance Menu* will appear.



Figure 4-18. Receiver Reset Appliance Menu

5. Choose *Receiver Reset* to initiate the reset. A message will be displayed on the Serial Interface that states “Resetting appliance...”. When the reset is complete, you will be automatically returned to the *Appliance Selection Menu*.

To reset the Transmitter:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. The Transmitter *Main Menu* will appear.
4. Choose *Reset Appliance*. The *Reset Appliance Menu* will appear.
5. Choose *Transmitter Reset* to initiate the reset. A message will be displayed on the Serial Interface that states “Resetting appliance...”. During reset the Transmitter will drop the connection to the Receiver. A second system message will appear that states “Connection to the Transmitter is lost.” You will be automatically returned to the *Appliance Selection Menu* screen.

4.10 Viewing System Information

The Serial Interface enables you to display the firmware release and details of the Receiver and of the Transmitter.

To view Receiver system information:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The *Receiver Main Menu* will appear.

- Choose *Appliance Information*. The *Appliance Information Menu* will appear.

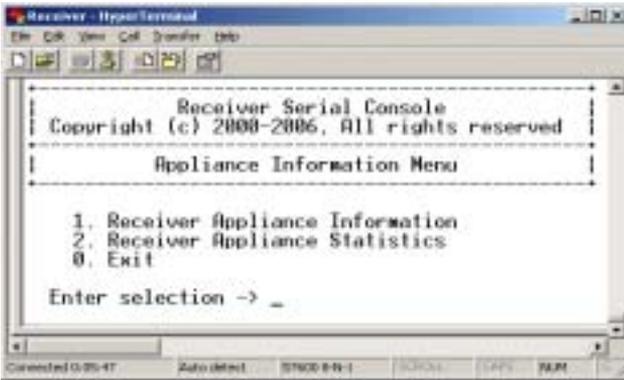


Figure 4-19. Appliance Information Menu

- Choose *Receiver Appliance Information*. The *Receiver Appliance Information Menu* will appear.

The *Receiver Appliance Information Menu* screen contains the following information: Receiver name; EID number; release version; application boot and FPGA firmware version numbers; and the manufacturing part number. All values are read-only.

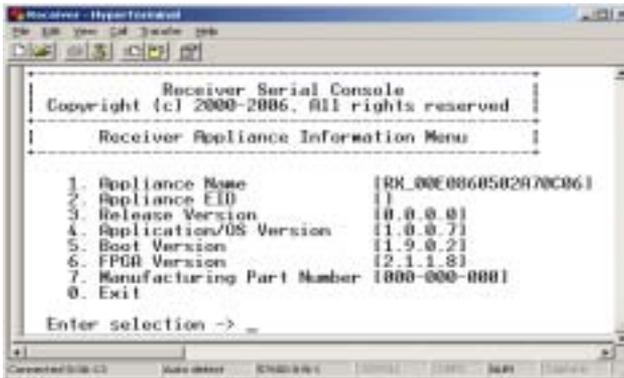


Figure 4-20. Receiver Appliance Information Menu

To view Transmitter system information:

- Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
- Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
- Type the password and press **Enter**. The *Transmitter Main Menu* will appear.
- Choose *Appliance Information*. The *Appliance Information Menu* will appear.
- Choose *Transmitter Appliance Information*. The *Transmitter Appliance Information Menu* will appear.

The *Transmitter Appliance Information Menu* screen contains the following information: Transmitter name; EID number; release version; application boot and FPGA firmware version numbers; and the manufacturing part number. All values are read-only.

4.11 Configuring Video Input Settings

You can configure the video input to the Transmitter as VGA or DVI.

To configure video input settings:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 2 to access the Transmitter menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Transmitter *Main Menu* will appear.
4. Choose *Console Settings*. The *Console Settings Menu* will display. The current video input setting is displayed beside menu item 1. *Target Video - DVI/VGA* .

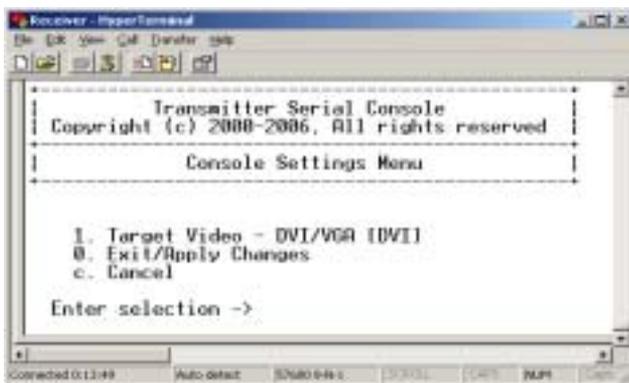


Figure 4-21. Transmitter Console Settings Menu

5. To toggle between DVI or VGA, choose menu item 1. *Target Video - DVI/VGA*.
6. The updated setting will be displayed beside 1. *Target Video - DVI/VGA*.
7. To save your changes and exit the menu, type 0 (zero) and press **Enter**.

4.12 Configuring the OSD Hotkey Sequence

To change the hotkey sequence that activates your OSD:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Receiver *Main Menu* will appear.

- Choose *Console Settings*. The *Console Settings Menu* will appear. Your currently selected OSD hotkey sequence is displayed beside menu item *1. OSD Hotkey*.

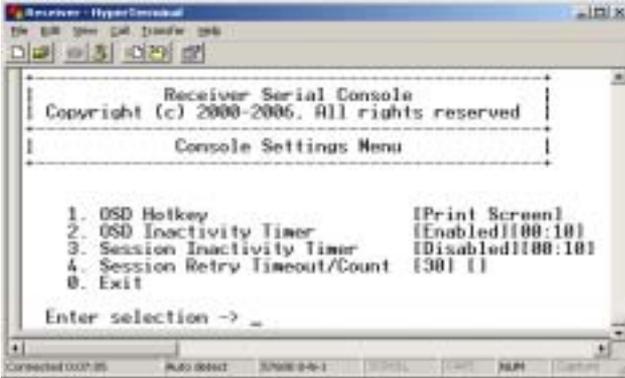


Figure 4-22. Receiver Console Settings Menu

- Choose *OSD Hotkey*. The *OSD Hotkey Menu* will appear. This menu shows you the hotkey sequences that you can choose from. The current hotkey sequence is indicated by an asterisk *.

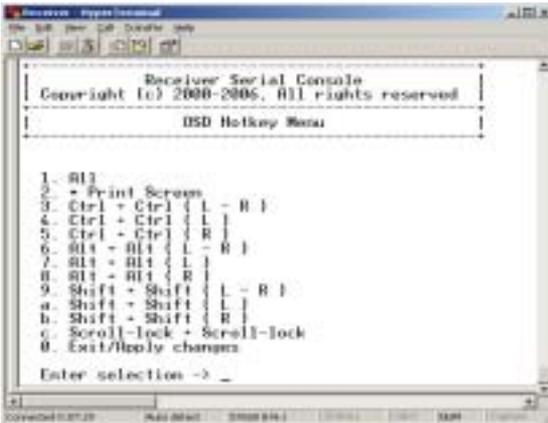


Figure 4-23. OSD Hotkey Menu

- Type the number that corresponds to the hotkey sequence you wish to apply and press **Enter**.
- To confirm your selection and exit the screen, type **0** (zero) and press **Enter**.

Table 3.2: OSD Hotkey Sequences

Hotkey Sequences	
All	Print Screen (Default)
Ctrl + Ctrl (L - R)	Ctrl + Ctrl (L)
Ctrl + Ctrl (R)	Alt + Alt (L - R)
Alt + Alt (L)	Alt + Alt (R)
Shift + Shift (L - R)	Shift + Shift (L)
Shift + Shift (R)	Scroll-lock + Scroll-lock

4.13 OSD Inactivity Timeout

By default, the Receiver is configured to dismiss the OSD after an inactivity period of 10 minutes. To reactivate the OSD, you must enter a valid OSD hotkey sequence. See “Configuring the OSD Hotkey Sequence” on page 40.

Using the Serial Interface, you can modify the default configuration. You can disable the OSD timeout or you can change the timeout period to any value between zero minutes and 10 hours. Setting the timeout period to 0 means that the OSD will not timeout. The maximum timeout period that can be configured is 9 hours and 59 minutes.

NOTE:

You can dismiss the OSD at any time by pressing **ESC**.

To change the OSD timeout period:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Receiver *Main Menu* will appear.

- Choose *Console Settings*. The *Console Settings Menu* will appear. The current OSD Timeout configuration is displayed beside menu item 2. *OSD Inactivity Timer*.

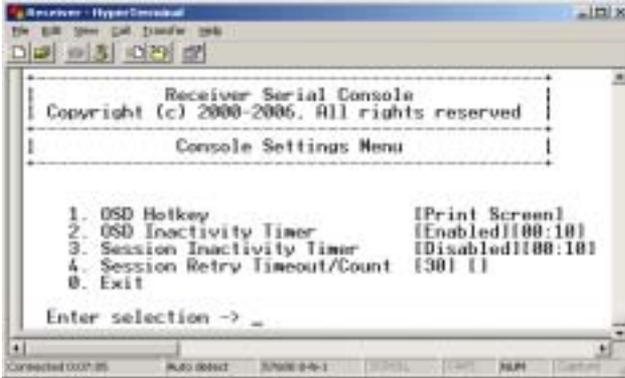


Figure 4-24. Receiver Console Settings Menu

- Choose *OSD Inactivity Timer*. The *OSD Inactivity Timer Menu* will appear.

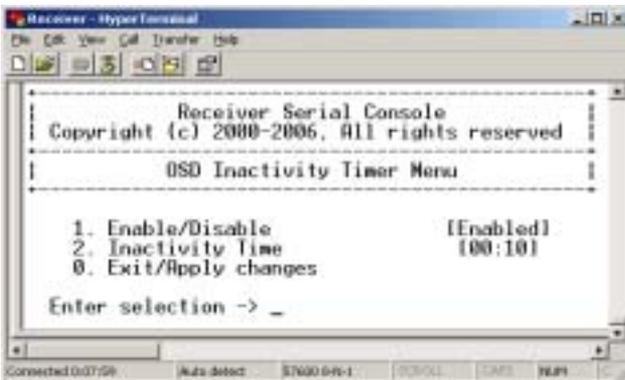


Figure 4-25. OSD Inactivity Timer Menu

- Choose *Inactivity Time*. You will be prompted to enter a timeout period in the format HH:MM. The maximum timeout period you can enter is 9 hours and 59 minutes (09:59).
- Type the timeout period and press **Enter**.
- To confirm your selection and exit the screen, type 0 (zero) and press **Enter**.

NOTE:

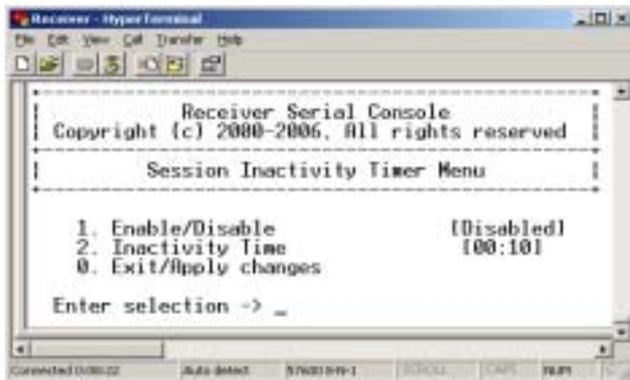
To disable the OSD timeout, choose *Disable* in the OSD Inactivity Timer Menu.

4.14 Session Inactivity Timeout

If you wish, you can configure the Receiver to terminate the connection with the Transmitter if the user has not interacted with the Receiver for a defined period of time. The maximum timeout period you can set is 9 hours and 59 minutes.

To enable Session Inactivity Timeout:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Receiver *Main Menu* will appear.
4. Choose *Console Settings*. The *Console Settings Menu* will appear. The current Session Inactivity Timeout configuration is displayed beside menu item 3. *Session Inactivity Timer*.
5. Choose *Session Inactivity Timer*. The *Session Inactivity Timer Menu* will appear.

**Figure 4-26. Receiver Session Inactivity Timer Menu**

6. To toggle between Disabled and Enabled, choose *Enable/Disable*.
7. To confirm your selection and exit the screen, type 0 (zero) and press **Enter**.

NOTE:

The default Session Inactivity Timeout period is 10 minutes.

To change the Session Inactivity Timeout period:

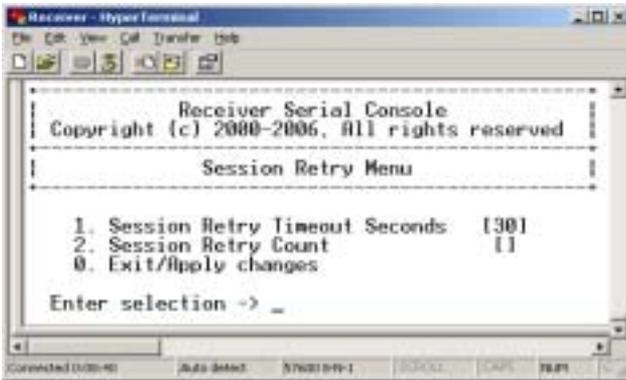
1. Choose *Session Inactivity Timer*. The *Session Inactivity Timer Menu* will appear.
2. Choose *Inactivity Time*. You will be prompted to enter a timeout period in the format HH:MM. The maximum timeout period you can enter is 9 hours and 59 minutes.
3. Type the timeout period and press **Enter**.
4. To confirm your selection and exit the screen, type 0 (zero) and press **Enter**.

4.15 Session Retry Settings

The ServSwitch DTX5000 system is designed to automatically establish a connection between the Receiver and the remote computer. By default, if the Receiver cannot immediately establish a connection with the remote computer it will retry every 30 seconds until a connection is successfully established. You can change the default session retry settings using the Serial Interface.

To access the *Session Retry Menu*:

1. Activate the Serial Interface menu as described in “Accessing the Serial Interface” on page 23.
2. Choose option 1 to access the Receiver menu. If the password option is enabled, you will be prompted for a password. See “Access Control” on page 29.
3. Type the password and press **Enter**. The Receiver *Main Menu* will appear.
4. Choose *Console Settings*. The *Console Settings Menu* will appear.
5. Choose *Session Retry*. The *Session Retry Menu* will appear.

**Figure 4-27. Session Retry Menu****To change the retry settings:**

1. Access the *Session Retry Menu* via the Serial Interface as described above.
2. To change the time interval between retry attempts, choose *Session Retry Timeout Seconds*. You will be prompted to enter a new timeout value in SS (seconds) format.
3. Type a value between 10 and 60 (inclusive) and press **Enter**.
4. To confirm your selection and exit the screen, type 0 (zero) and press **Enter**.

5. Troubleshooting

5.1 Troubleshooting Tips

No power status light on Receiver

- Verify that the power supply is plugged in correctly.
- Ensure that the power cable from the Black Box-supplied power supply is securely plugged into the Receiver.

No video on monitor attached to Receiver

- Verify that the monitor attached to the Receiver has power.
- Ensure that the video cable from the monitor is securely plugged in to the correct connector on the Receiver.
- Verify that the remote computer is powered.
- Confirm that a network connection exists between the Transmitter and Receiver.
- Confirm that the IP address used by the Transmitter has not been assigned to a second device on the network.
- Confirm that the IP address used by the Receiver has not been assigned to a second device on the network.
- Verify that the Transmitter is drawing sufficient power from the USB connections on the remote computer and that it has booted correctly:
 - If the green LED on the Transmitter is on, the Transmitter is drawing sufficient power.
 - If the Transmitter cannot draw sufficient power from the remote computer you will need to obtain an external power supply unit for the Transmitter from Black Box. If connected through a USB hub, ensure that the hub can supply the necessary power.
- Verify that the correct video setting has been configured in the Transmitter Serial Interface menu:
 - If the remote computer provides DVI only video, verify that the Transmitter Serial Interface menu has been configured for DVI. Then restart the remote computer.
 - If the remote computer provides VGA only video, verify that the Transmitter Serial Interface menu has been configured for VGA. Then restart the remote computer.
- The Transmitter has an internal fan. Verify that the fan is functioning.
- Cycle power to the Receiver. An informational message should appear on the monitor for a brief moment. If the message does not appear, check the monitor by plugging the video cable from the monitor directly into the remote computer to verify that the monitor is working and that the remote computer is generating active video. If this is functioning, check that the display settings for your remote computer are set no higher than a resolution of 1280 x 1024 at 60 Hz refresh rate. If the monitor does not function correctly, replace it.

No mouse or keyboard operation from peripherals attached to Receiver

- Ensure that the mouse and keyboard cables are connected to the correct PS/2 or USB ports on the Receiver. Match the connector color codes (green for mouse and purple for keyboard).
- Ensure that both of the USB connectors from the Transmitter are securely connected to the correct connectors on the remote computer.
- If the remote computer can provide only one USB port for the Transmitter:
 - Use an external power supply for the Transmitter
 - Ensure that the Transmitter USB cable labeled “1” is attached the available USB port of the remote computer
- Ensure that the correct keyboard layout is configured on the remote computer for the keyboard you are using.
- Retest the mouse and keyboard by connecting them directly to the remote computer and rebooting. If one does not function correctly, replace it.

No audio from speakers attached to Receiver

- Ensure that the audio cable is securely plugged into the line-out port of the remote computer (should be color-coded green).
- Ensure that the speaker cable is securely plugged into the line-out port of the Receiver.
- Verify that the speakers are powered.
- Retest the speakers by connecting them directly to the remote computer. If they do not function correctly, replace them.

Poor video quality on monitor attached to Receiver

- Reset video by pressing <F11>.
- Ensure that the video cable from the monitor is securely plugged in to the correct connector on the Receiver.
- Check the video quality using a different monitor.

No response from USB mass media device attached to the Receiver

- Ensure that the mass media device is directly connected to one of the USB connectors on the Receiver. If the mass media device is connected to the Receiver via a USB hub, it will not be possible to access it.
- Ensure that the mass media device is securely plugged in to the correct connector on the Receiver.
- Ensure that both of the USB connectors from the Transmitter are securely connected to the correct ports on the remote computer.
- Verify that the mass media device is functioning correctly by attaching it to the USB port on another computer. If the mass media device is not functioning correctly, replace it.

Slow file transfer rate from or to the USB mass media device

- Verify that at least one of the Transmitter USB cables is connected to a high speed USB port on the remote computer. The Transmitter will operate with either Low Speed or Full Speed USB, but with Low Speed USB the file transfer rate will be slower.

Connection to remote computer is lost

- Verify that the network cable is securely connected to the RJ45 connector at the rear of the Receiver.
- Verify that the Receiver is linked to the network and that it is receiving data. See “LED Identification” on page 21.
- Verify that the remote computer is powered.
- Ensure that both of the USB connectors from the Transmitter are securely connected to the correct connectors on the remote computer.
- Verify that the Transmitter is drawing sufficient power from the USB connections on the remote computer and that it has booted correctly:
 - If the green LED on the Transmitter is on, the Transmitter is drawing sufficient power.
 - If the Transmitter cannot draw sufficient power from the remote computer you will need to obtain an external power supply unit for the Transmitter from Black Box.
- The Transmitter has an internal fan. Verify that the fan is functioning.
- Ping the Transmitter from another PC on the network to ensure it is connected.
- Reset the Transmitter. See “Resetting the ServSwitch DTX5000 System” on page 37.
- Reset the Receiver. See “Resetting the ServSwitch DTX5000 System” on page 37.
- Verify that the Ethernet network is fully operational.

5.2 Calling Black Box

If you determine that your ServSwitch DTX5000 system is malfunctioning, do not attempt to alter or repair it. It contains no user-serviceable parts. Refer to the table on the following page for Black Box Technical Support Information.

Before contacting Black Box Technical Support, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- The nature and duration of the problem
- When the problem occurs
- The components involved in the problem
- Any particular application that, when used, appears to create the problem or make it worse
- The results of any testing you have already done

5.3 Shipping and Packaging

If you need to transport or ship your ServSwitch DTX5000:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the Receiver for repair, make sure you include its power cord and the cables you are using with it. If you are returning the Transmitter, make sure you include everything you received with it. Before you ship, contact Black Box to get a Return Authorization (RA) number.

Black Box Technical Support

Country	Web Site/E-Mail	Phone	Fax
US	www.blackbox.com info@blackbox.com	(724) 746-5500	(724) 746-0746
Austria	www.black-box.at support@black-box.at	+43 1 256 98 56	+43 1 256 98 56
Belgium	www.blackbox.be support.nederlands@blackbox.be support.french@blackbox.be support.english@blackbox.be	+32 2 725 85 50	+32 2 725 92 12
Denmark	www.blackbox.dk blackbox@blackbox.dk	+45 56 63 30 10	+45 56 65 08 05
Finland	www.blackbox.fi tuki@blackbox.fi	+358 201 888 800	+358 201 888 808
France	www.blackbox.fr tech@blackbox.fr	+33 820 07 09 11	+33 820 05 07 09
Germany	www.black-box.de techsupp@black-box.de	+49 811 5541 110	+49 811 5541 499
Ireland	www.blackbox.co.uk techhelp@blackbox.co.uk	+353 1 662 2466	+353 1 662 2477
Italy	www.blackbox.it supporto.tecnico@blackbox.it	+39 02 27 404 700	+39 02 27 400 219
Netherlands	www.blackbox.nl techsupport@blackbox.nl	+31 30 241 7799	+31 30 241 4746
Norway	www.blackboxnorge.no support@blackboxnorge.no	+47 55 300 710	+47 55 300 701
Spain	www.blackbox.es tecnico@blackbox.es	+34 916590732	+34 916239784
Sweden	www.blackboxab.se support@blackboxab.se	+46 8 44 55 890	+46 08 38 04 30
Switzerland	www.black-box.ch support@black-box.ch	+41 55 451 70 71	+41 55 451 70 75
UK	www.blackbox.co.uk techhelp@blackbox.co.uk	+44 118 965 6000	+44 118 965 6001



Doc. No. 590-611-501C

Customer Support Information:

For 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 Dr., Lawrence, PA 15055-1018

World-Wide Web: www.blackbox.com • Email: info@blackbox.com

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