ServSwitch™ TDX

USER GUIDE

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Welcome

Introduction

The Black Box ServSwitch TDX is a robust keyboard and mouse switch created specifically for trading floors and control rooms, where information must be controlled across numerous systems and screens. The ServSwitch TDX allows a single keyboard and mouse to fulfil the function that previously required four separate sets. This provides immediate savings in both desk space and also the time required to access information spread across up to four systems and screens.

Switching between the systems connected to the ServSwitch TDX can be achieved in five different ways:

- The ServSwitch TDX unit SELECT button
- The optional Remote control selector
- Keyboard hotkey combinations
- Mouse button combinations
- Automatic switching using the Synchrony utility (see below)

Automatic switching between systems

When used with Synchrony software, the ServSwitch TDX allows automatic switching between the connected systems and screens. The switching between the systems is determined primarily by the position of the mouse cursor. As the cursor exceeds the periphery of one screen, control is seamlessly switched to the next screen/system.

This operation requires all of the systems to run the Synchrony utility and one of them to be designated as the 'primary'. Additionally, a serial link is required between the primary system and the ServSwitch TDX.

See page 3 for further details: How does Synchrony work?

PC1 (PRIMARY)

PC2

Serial (RS232) link between switch and primary system
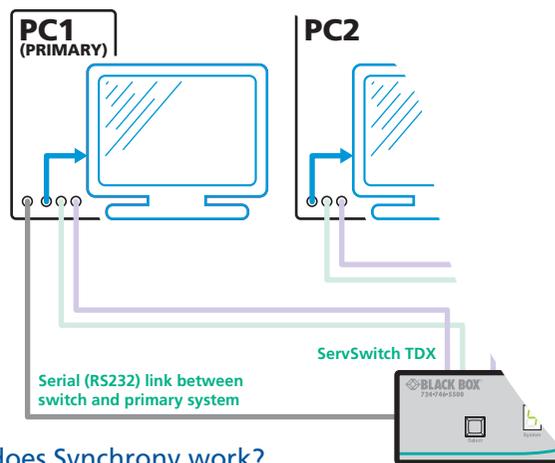
ServSwitch TDX

The video displays are connected directly to their respective systems as usual. The keyboard and mouse ports of each system, however, are connected to the ServSwitch TDX unit.

PC1 **PC2** **PC3** **PC4**
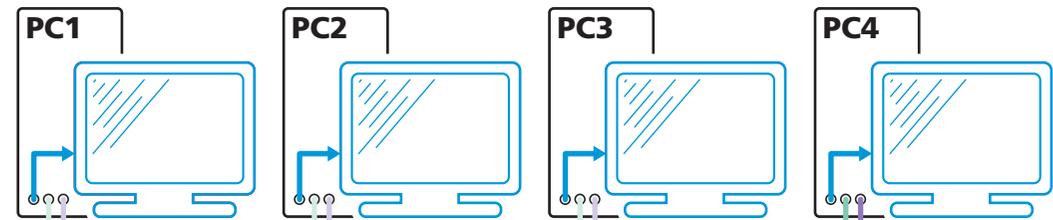
The keyboard and mouse are electronically linked through to the currently selected system.
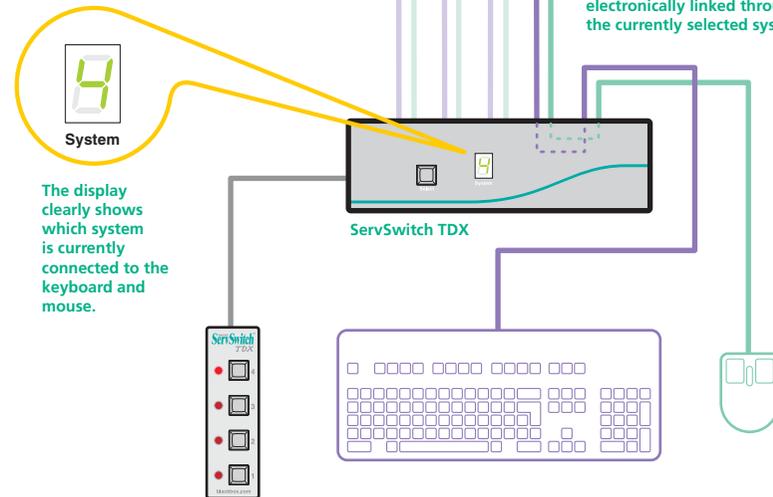
System

The display clearly shows which system is currently connected to the keyboard and mouse.

ServSwitch TDX

Remote control allows the main unit to be neatly concealed amongst the cabling.

Single keyboard and mouse are common to all of the systems and are electronically connected to the required one using any of four switching methods. Switching can be initiated from either the keyboard or mouse in addition to the ServSwitch TDX unit or optional remote control.

How does Synchrony work?

Synchrony is a small software utility that runs on each of your computer systems and continually tracks the current mouse cursor position. One system is designated as the 'primary' and the other systems use standard network links to report their mouse cursor information back to it.

The primary system has an extra communication link directly to the ServSwitch TDX switch. When the Synchrony utility detects that the cursor has moved over the edge of a screen boundary, it instructs (via the primary computer) the ServSwitch TDX to switch the common keyboard and mouse through to the appropriate computer.

The ServSwitch TDX and Synchrony combination minimises any potential security risks in two important ways:

- The network messages flowing between the systems contain only benign cursor positioning reports.
- All keyboard and real mouse data flow only through the direct keyboard and mouse connections via the ServSwitch TDX, not via the network.

The Synchrony utility provides straightforward configuration in which you can define the connected systems, their network identities and their relevant switching scenarios. The primary system runs Synchrony in *server mode* whereas the other systems run Synchrony within its *client mode*.
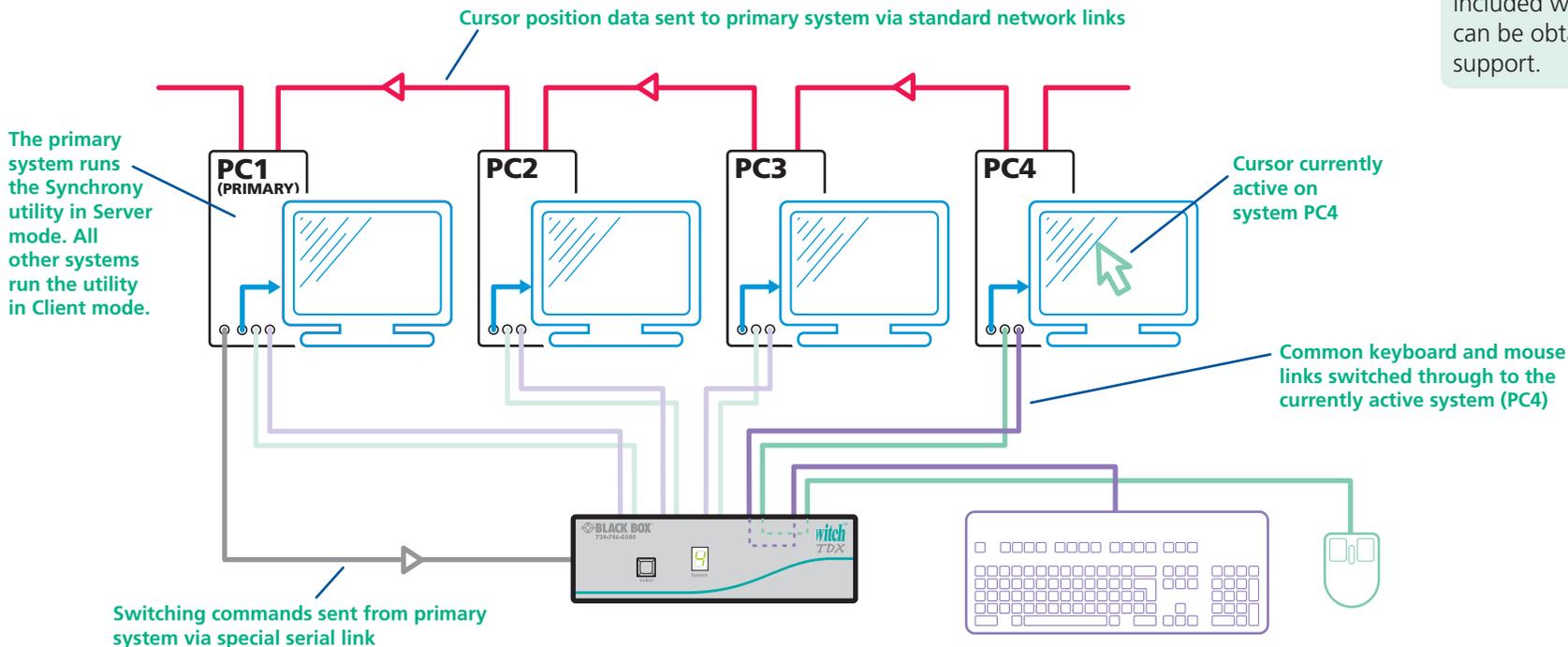
Synchrony configuration tips

In combination with the installation instructions provided with the Synchrony utility, please consider these configuration tips:

- You are recommended to use a native serial port or third-party serial card on the primary system. USB to serial adapters will work, but won't provide such a rapid switching action between systems.
- Option switch 5 is used to place the ServSwitch TDX into Synchrony mode, however, the setup switches are only consulted during the power on phase, or when the ServSwitch TDX is reset using option switch 8. Moving option switch 5 whilst the unit is on will have no effect.
- For each systems, the screen name that you enter in the Synchrony setup must be the name that identifies the system on the network (it cannot be random). In Windows this can be found in *My Computer > Properties > Computer Name*. Alternatively, you can discover the screen name by running the Synchrony software and selecting "Advanced". The computer name of the current computer is then shown in the *Screen Name* field.

Full instructions on how to install and configure Synchrony are included with the utility which can be obtained from Black Box support.

Cursor position data sent to primary system via standard network links

The primary system runs the Synchrony utility in Server mode. All other systems run the utility in Client mode.

PC1 (PRIMARY)

PC2

PC3

PC4

Cursor currently active on system PC4

Common keyboard and mouse links switched through to the currently active system (PC4)

Switching commands sent from primary system via special serial link

Standard items

ServSwitch TDX
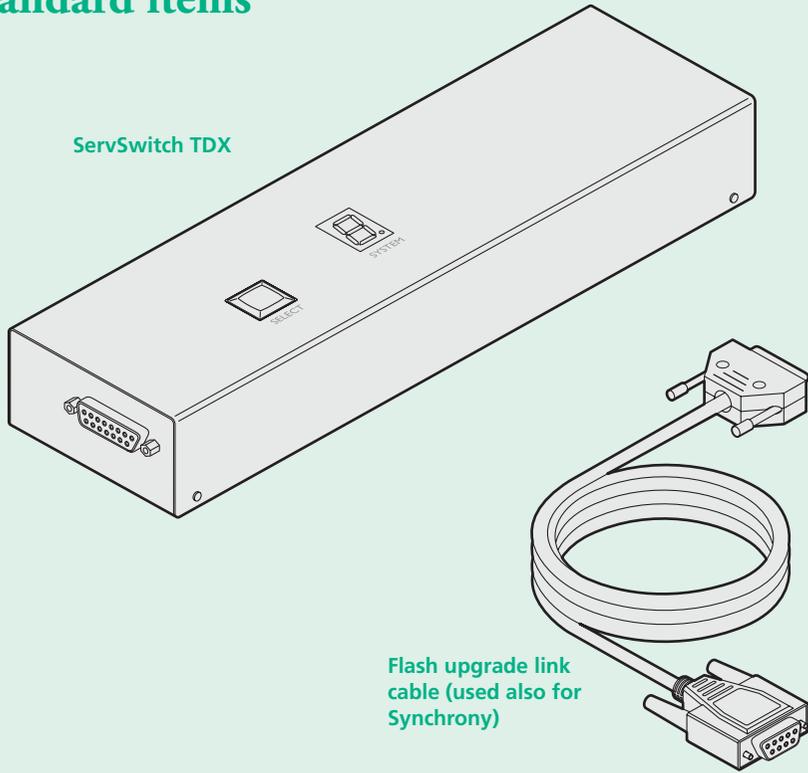
Flash upgrade link cable (used also for Synchrony)

PS/2-style keyboard/mouse cable, 2 metres (two required per system)

KVUSB2PS2 converter (required when connecting to a system that uses a USB keyboard and mouse - two of the above cables are also required)

Additional and optional items
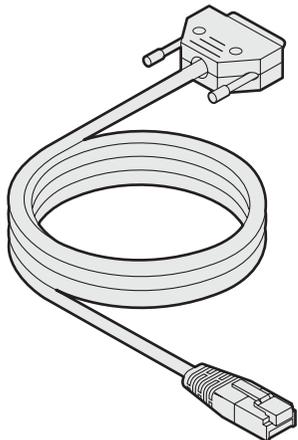
Remote control plus link cable
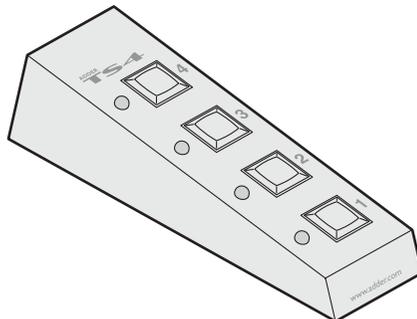
Optional power supply (required only when long cables are used) plus country-specific mains cable
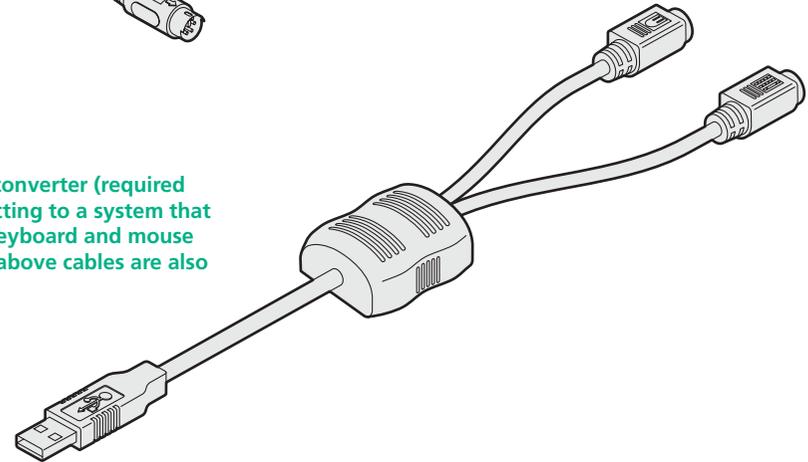
Installation

Locations

Please consider the following important points when planning the position of the ServSwitch TDX unit:

- Situate the ServSwitch TDX unit close to the systems to which it will be connected. The ServSwitch TDX does not require a power supply providing that its connection cables are no longer than 2 metres.
- Thanks to the remote control, the ServSwitch TDX unit can be situated out of sight within the cabling cradle of a desk or adjacent to the systems.
- Consult the precautions listed within the Safety information section.

Mounting

Before you begin connecting to the keyboard, mouse and source systems, it is advisable to mount the ServSwitch TDX unit in place, either:

- On a horizontal surface using the supplied self adhesive feet, or
- Amongst the cabling at the rear of the desk.

Making connections

Connections to the ServSwitch TDX unit do not need to follow the precise order given in this user guide, although if one or more systems must be hot-plugged, connect these after all other connections have been made.

System connections

To connect a system (PS/2-style connections)

Note: Two PS/2 link cables are required per connected system.

1   Ensure that the computer system to be connected is switched off and power is removed from the ServSwitch TDX.

   (Note: If it is not possible to switch off systems prior to connection, then a 'Hot plug' procedure is available – see the Hot plugging and mouse restoration section for more details).

2   At the rear panel of the ServSwitch TDX unit, attach a PS/2 link cable to the (purple) keyboard socket of port 1.
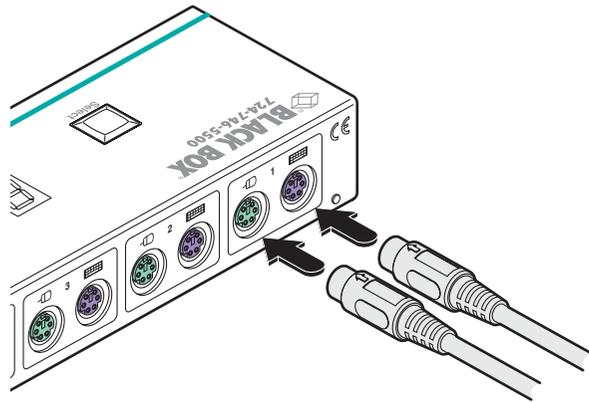
3   Attach the other end of the PS/2 link cable to the keyboard socket (usually coloured purple) on the first system.

4   Repeat steps 1 and 2 for the mouse connection (green) between the ServSwitch TDX port 1 and the first system.

   Note: For neatness and accessibility it is advisable to join the keyboard and mouse link cables, that lead to each system, using several cable ties.

5   Repeat the above steps for systems 2, 3 and 4 to the corresponding ports of the ServSwitch TDX. If any systems do not have PS/2-style keyboard and mouse connectors, please use a KVUSB2PS2 converter, as discussed opposite.

To connect a system (USB-style connections)

Note: Two PS/2 link cables plus one KVUSB2PS2 converter are required per connected system.

1   At the rear panel of the ServSwitch TDX unit, attach a PS/2 link cable to the (purple) keyboard socket of port 1.

2   Attach the other end of the PS/2 link cable to the inline keyboard socket of the KVUSB2PS2 converter.

3   Repeat steps 1 and 2 for the mouse connection (green) between the ServSwitch TDX port 1 and the KVUSB2PS2 converter.
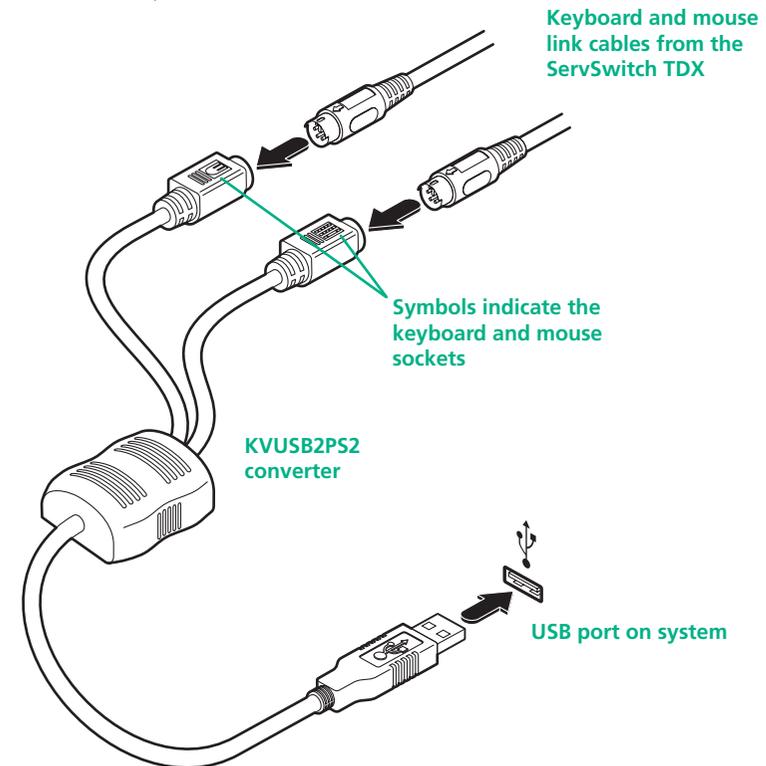
Keyboard and mouse link cables from the ServSwitch TDX

Symbols indicate the keyboard and mouse sockets

KVUSB2PS2 converter

USB port on system

Note: For neatness and accessibility it is advisable to join the keyboard and mouse link cables, that lead to each system, using several cable ties.

4   Attach the USB connector of the KVUSB2PS2 converter to a vacant USB socket of the first system.

5   Repeat the above steps for any other system that requires USB connections.

Keyboard and mouse connections

To connect a keyboard and mouse

1 At the rear panel of the ServSwitch TDX unit, attach the connector from the keyboard to the purple socket that is closest to the power input socket.

2 At the rear panel of the ServSwitch TDX unit, attach the connector from the mouse to the green socket that is closest to the power input socket.
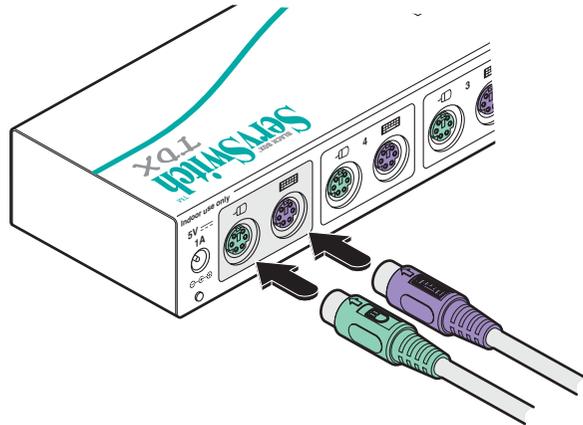
Optional power supply connections

Note: The ServSwitch TDX can obtain its power from the keyboard connections of any of the four connected systems. Thus, an external power supply is not required unless the connection cables used exceed 2 metres.

Important: Please read and adhere to the electrical safety information given within the Safety information *section of this guide. In particular, do not use an unearthed power socket or extension cable.*

To connect the optional power supply

1 Attach the output connector of the power supply (country specific power supplies are available) to the socket on the far left of the rear panel of the ServSwitch TDX.

2 When all other connections have been made, connect the main body of the power supply to a nearby earthed mains socket.

Remote control connections

The remote control unit can be used to provide manual switching between systems.

Note: The remote control cannot be used in conjunction with the ServSwitch TDX when a Synchrony auto switching link is being used because they both use the same switching socket.

To connect the remote control

1 On the underside of the ServSwitch TDX unit, ensure that switch 5 is switched OFF. *Note: The switch settings are consulted by the unit only during its power up phase, i.e. when power is first supplied by a keyboard socket of a powered system. Therefore, change the setting while the unit is disconnected or use switch 8 to force a reset, whereupon the other switches will be consulted.*

2 Locate the remote control unit and the remote control cable. Attach the smaller of the two cable connectors to the socket at the rear of the remote control.
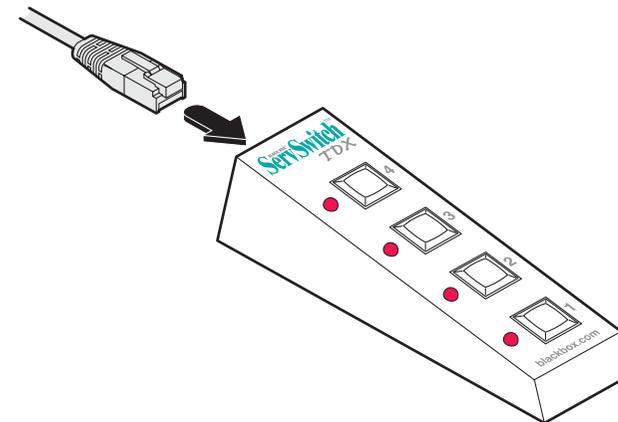
3 At the other end of the cable, attach the larger connector to the socket on the end of the ServSwitch TDX unit.

7
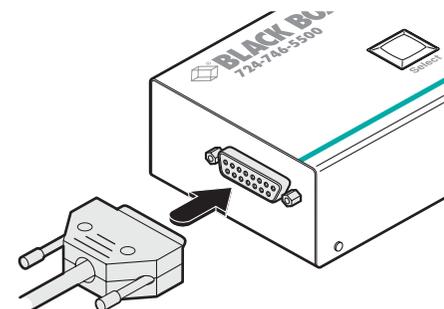
Synchrony connections

When using the Synchrony software utility to provide automatic system switching (according to mouse movements) it is necessary to link the ServSwitch TDX to the designated 'primary' system that will run the software utility.

Note: The remote control cannot be used in conjunction with the ServSwitch TDX when a Synchrony auto switching link is being used because they both use the same switching socket.

To connect the Synchrony serial link cable

1 Locate the Synchrony serial link (flash upgrade) cable.

2 Attach the smaller of the two cable connectors to a vacant serial port socket on the designated 'primary' computer system (the system that will be running the Synchrony software utility).
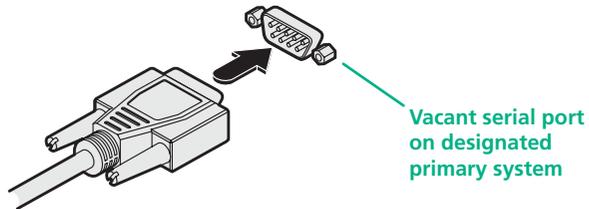
Vacant serial port on designated primary system

3 At the other end of the cable, attach the larger connector to the socket on the end of the ServSwitch TDX unit.
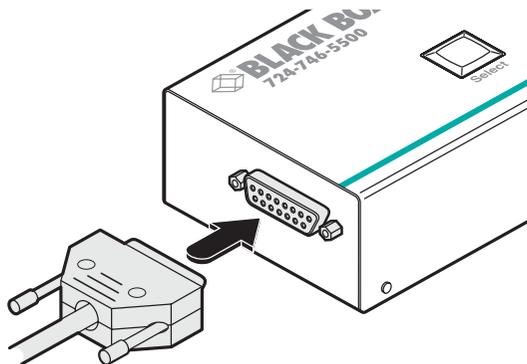
4 On the underside of the ServSwitch TDX unit, remember to set switch 5 to ON to enable the auto switching mode.

Change switch 5 to ON
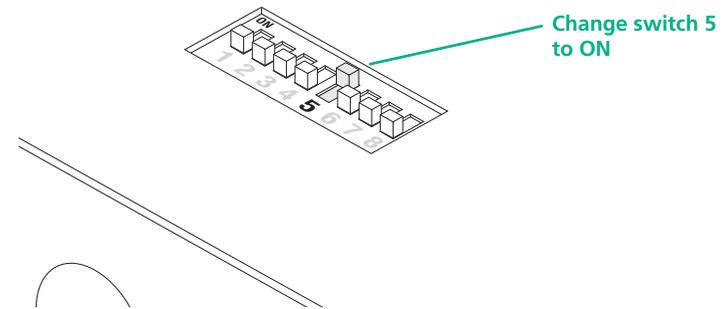
Notes:

- For more information about <u>how the Synchrony system works</u>, please refer to page 3.

- Ensure that the Synchrony utility on the *Primary* system operates in *Server mode*.

- Ensure that the Synchrony utilities on all of the other systems operate in *Client mode*.

Configuration switch settings

The underside of the ServSwitch TDX unit features a block of eight switches which are used to configure various fundamental settings. When shipped, all switches are set to OFF, which produces normal operation within the ServSwitch TDX unit. Further details about switch settings can be found within sections of this guide dealing with specific setup issues.

2,3,4 Reserved

6 OFF: Cycle between all system ports
ON: Cycle between active ports only

1 OFF: Normal operation
ON: Auto switch to powered port

8 OFF: Normal operation
ON: (while power applied) Reset unit

5 OFF: Normal operation
ON: Synchrony mode

7 OFF: Normal operation
ON: Upgrade mode
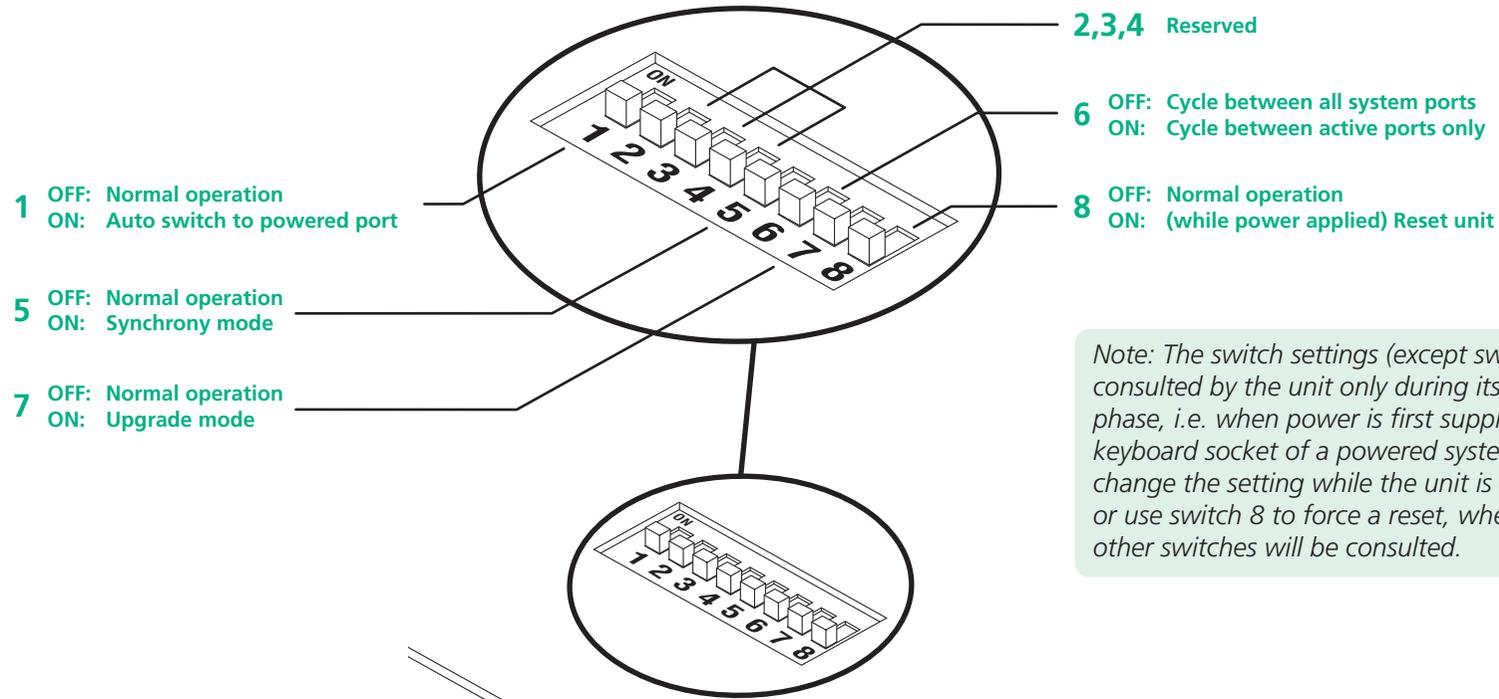
Note: The switch settings (except switch 8) are consulted by the unit only during its power up phase, i.e. when power is first supplied by a keyboard socket of a powered system. Therefore, change the setting while the unit is disconnected or use switch 8 to force a reset, whereupon the other switches will be consulted.

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Hot plugging and mouse restoration

It is strongly recommended that you switch off a host system before attempting to connect it to the ServSwitch TDX. However, if this is not possible then you need to 'hot plug' the system while it is still running. There is not normally a danger of damage to the system, however, when PS/2-style mouse or IntelliMouse communications (i.e. non-USB) are interrupted, often they fail to re-initialise when reconnected. The ServSwitch TDX provides a feature to reinstate mouse communications once the necessary connections have been made.

There are two main types of data formats used by current non-USB mice, these are the older 'PS/2' format and the more recent 'IntelliMouse®' format introduced by Microsoft. These use slightly different data arrangements and it is important to know which type was being used before you hot-plugged the system to the ServSwitch TDX. The previous setting depends both on the type of mouse and the type of driver, as various combinations of PS/2 and IntelliMouse are possible. Using the incorrect restore function may produce unpredictable results and require the system to be re-booted.

Which restore setting do I use?

The general rule is that unless both the mouse *and* the driver are *both* IntelliMouse compatible then you need to restore the mouse as 'PS/2'. An IntelliMouse can operate in either mode, whereas a PS/2 mouse cannot.

Recognising an IntelliMouse-style mouse

The IntelliMouse format was introduced to support, among other features, the scroll wheel function. If the mouse has a scroll wheel, then it is likely to support the IntelliMouse format. If it is a Microsoft-branded mouse, then it will usually state that it is an IntelliMouse on its underside label.

Recognising an IntelliMouse driver

Before hot plugging to the ServSwitch TDX (or afterwards using only keyboard control), access the Windows Control Panel of the system and select either the *Mouse* option (on Windows NT, 2000 and XP) or the *System* option (on Windows 95, 98, ME). Look for the name of the driver, which will usually include the words *PS/2* or *IntelliMouse*.

To restore mouse operation when hot plugging:

1 Using link cables, carefully make the keyboard and mouse connections between the host system and the appropriate ports on the ServSwitch TDX.

2 Press and hold the SELECT button on the ServSwitch TDX front panel for five seconds, until the SYSTEM readout shows ⊏ (Configuration mode).

3 Choose one of the following actions:
   - To restore a standard PS/2-style mouse: Press F 5 ↵
   - To restore an IntelliMouse: Press F 6 ↵

The SYSTEM readout will show the entered characters and then return to show ⊏ when you press ↵. The mouse restoration should now be complete.

Note: The restore functions predict the likely mouse resolution settings but may not restore the exact speed or sensitivity settings that were originally set.

4 Move the mouse a short distance and check for appropriate on-screen cursor movement. If the mouse cursor darts erratically around the screen, then cease moving the mouse. This is an indication that the chosen restore function is incorrect. Try again using the other restore function.

5 To exit from Configuration mode, press E ↵.

Operation

In operation, the ServSwitch TDX allows you to quickly switch between up to four systems. One system can be accessed at a time, whereupon the common keyboard and mouse are linked to that system. The ServSwitch TDX deceives the other systems that they still have a keyboard and mouse connected to them in order that they respond quickly and correctly once they are again selected.

The SYSTEM readout

On the front panel of the ServSwitch TDX unit, the SYSTEM readout indicates either:
- The computer system to which the keyboard and mouse are connected, or
- An alternative mode of operation, such as password protected mode, configuration mode, upgrade mode, etc.

Main digit indicates currently selected system or other modes - see below for details.

Flashing dot indicates keyboard and/or mouse activity.
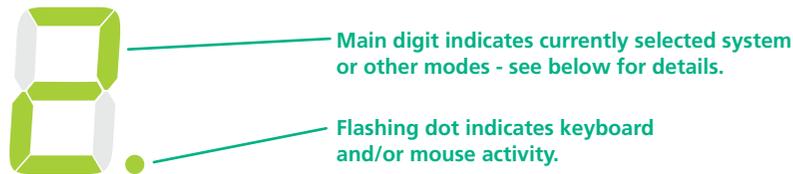
Typical SYSTEM readout displays are:

1, *2*, *3* or *4*　Indicates the currently selected system. The selected channel will also be indicated on the remote control.

0　The ServSwitch TDX is disabled, no system is currently selected. The remote control will not show any channel indication.

P　The ServSwitch TDX is password protected. You must enter the current password to gain access. See Setting (or changing) a password for details. The remote control will not show any channel indication.

C　Configuration mode is currently active. Press E ↵ to exit. See Configuration options for details. The remote control will not show any channel indication.

⊔　Upgrade mode is currently active. See Upgrading for details. The remote control will not show any channel indication.

U　The upgrade process is complete. Set mini switch 7 to OFF to exit upgrade mode.

Selecting systems

There are five ways to select a system:
- The ServSwitch TDX unit SELECT button
- The optional Remote control selector
- Keyboard hotkey combinations
- Mouse button combinations
- Automatic switching using the optional Synchrony utility

To use the ServSwitch TDX unit SELECT button
Note: You can determine whether the ServSwitch TDX visits every port in turn (regardless of whether active systems are connected to them) or only those with active systems connected. See All channel/active channel cycling for details.
- Press the SELECT button repeatedly until the SYSTEM readout shows the required system number.

To use the remote control selector
- Press the remote control button that corresponds to the required system. The adjacent indicator will illuminate to show that the chosen system is selected.

To use keyboard hotkey combinations
Note: The standard hotkeys can be changed to avoid clashes with software applications, see Changing hotkeys for details.
- **To select a particular system:** Press and hold the hotkeys (usually Ctrl and Alt), then also press the number of the required system and release all three keys.
- **To select the next/previous system:** Press and hold the hotkeys (usually Ctrl and Alt), then press and release the Tab key until the required system is selected. Release the hotkeys.

  Note: You can determine whether the ServSwitch TDX visits every port in turn (regardless of whether active systems are connected to them) or only those with active systems connected. See All channel/active channel cycling for details.

To use mouse button combinations
Note: The mouse button arrangements can be changed, see Mouse button switching modes for details.
- Press and hold the mouse scroll wheel (or centre mouse button) and then press either the left mouse button to change to the next system or the right mouse button to change to the previous system.

To use automatic switching (optional Synchrony utility required)
Simply move the mouse cursor beyond the edge of the current screen in the direction of the next screen. Control should switch to a new screen/system.

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Configuration options

The ServSwitch TDX provides numerous configuration options to ensure that it best suits your circumstances and the tasks carried out by the connected systems.

Setting (or changing) a password

The password option allows you to quickly impose a level of security suitable to prevent system tampering while you are away from your desk for short periods. When enabled, the ServSwitch TDX will default to protected mode when switched on or when you press the hotkeys and L *(lock)*.

To set (or change or cancel) a password

Note: If the SYSTEM readout shows P then the current password must be entered before attempting to enter the configuration mode.

1. Enter configuration mode: Press and hold the SELECT button until the SYSTEM readout shows C.

2. Press P ⏎. The SYSTEM readout will show = to indicate that you should enter your new password.

   Note: The password is not case sensitive and can be any combination of keystrokes including the function keys but excluding Ctrl, Alt, Shift and ⏎.

   Note: To cancel the password protection function, do not enter any characters, merely press ⏎.

3. When the password has been entered, press ⏎ to fix it and press E ⏎ to exit from configuration mode.

To lock the system (invoking password protection)

- Press and hold the hotkeys (usually Ctrl and Alt) and press L. The SYSTEM readout should show P.

   Note: If the SYSTEM readout shows 0, there is no password currently set.

To enter a password and unlock the system

1. Enter the current password (upper and lower cases are not differentiated).

2. Press ⏎. The SYSTEM readout should show the number of the first available system.

If the password is forgotten

1. Remove power from the ServSwitch TDX. If any systems are active, either switch them off or remove their keyboard link connectors from the ServSwitch TDX. If an optional power supply is used, remove it.

2. Press and hold the SELECT button and re-apply at least one source of power. The SYSTEM readout will show C to signify that configuration mode is active.

3. Follow the standard procedure 'To set (or change or cancel) a password' from step 2 to create a new password.

Changing hotkeys

Hotkeys are two normal keyboard keys that, when pressed simultaneously with a third key, signal to the ServSwitch TDX that you are sending a message specifically to it and not to the currently selected system. The hotkeys are ordinarily Ctrl and Alt, while a third keypress determines what you want the ServSwitch TDX to do, e.g change to different system, invoke password protection, etc.

If the standard Ctrl and Alt hotkeys are also needed for computer system tasks, you can change them for another combination, as discussed below.

To change the hotkeys

1. Enter configuration mode: Press and hold the SELECT button until the SYSTEM readout shows C.

2. Press H followed by a number to select the required hotkey setting, as follows:

H	1	'CTRL' and 'ALT' keys together (default)
H	2	'CTRL' and 'SHIFT' keys together
H	3	'ALT' and 'SHIFT' keys together
H	4	'RIGHT ALT' key
H	5	'LEFT ALT' and 'RIGHT ALT' keys together
H	6	'LEFT CTRL' and 'LEFT ALT' keys together
H	7	'RIGHT CTRL' and 'RIGHT ALT' keys together
H	8	No hotkey enabled

3. When the hotkey combination selection has been made, press ⏎ to fix it and press E ⏎ to exit from configuration mode.

Mouse button switching modes

You can use a three button mouse to switch between systems. However, when used in this way, the action of the middle mouse button or scroll wheel click is 'trapped' by the ServSwitch TDX and is not passed to the system. This makes it unavailable for use in controlling applications on the selected system. The scroll wheel scrolling action is unaffected and passed on normally to the systems, only the scroll wheel click is used by the ServSwitch TDX.

- To use the mouse buttons to change systems, use options U1 (default) or U4.
- To use the scroll wheel click/third mouse button with the systems, use options U3 or U5.
- To report only a simple 2-button mouse to the systems, use option U2.

To change the mouse button switching modes

1 Enter configuration mode: Press and hold the SELECT button until the SYSTEM readout shows ⊏.

2 Press Ⓤ followed by a number to select the required mouse button setting, as follows:

   Ⓤ ①   System channels are switchable using a 3-button mouse or IntelliMouse (default). ServSwitch TDX reports 2-button mouse mode to the systems.

   Ⓤ ②   System channels are not switchable using the mouse. ServSwitch TDX reports 2-button mouse mode to the systems.

   Ⓤ ③   System channels are not switchable using the mouse. ServSwitch TDX reports 3-button mouse mode to the systems.

   Ⓤ ④   System channels are switchable using a 3-button mouse or IntelliMouse (default). ServSwitch TDX reports IntelliMouse mode to the systems.

   Ⓤ ⑤   System channels are not switchable using the mouse. ServSwitch TDX reports IntelliMouse mode to the systems.

3 When the mouse button selection has been made, press ⏎ to fix it and then press Ⓔ ⏎ to exit from configuration mode.

All channel/active channel cycling

The ServSwitch TDX provides the option, when cycling between the system channels, to visit each channel (irrespective of whether an active system is connected) or to only select active channels. You can affect the keyboard/mouse setting independently from the front panel SELECT switch setting.

To change keyboard/mouse channel cycling

1 Enter configuration mode: Press and hold the SELECT button until the SYSTEM readout shows ⊏.

2 Press Ⓤ followed by a number to select the required keyboard/mouse channel cycling setting, as follows:

   Ⓤ ⑦   Cycle between all ports when switching with 'hotkeys and Tab' or three button mouse (default).

   Ⓤ ⑧   Cycle between active ports only when switching with 'hotkeys and Tab' or three button mouse (default).

3 When the channel cycling selection has been made, press ⏎ to fix it and then press Ⓔ ⏎ to exit from configuration mode.

To change SELECT button channel cycling

1 Remove power from the ServSwitch TDX. If any systems are active, either switch them off or remove their keyboard link connectors from the ServSwitch TDX. If an optional power supply is used, remove it.

2 On the rear panel, click mini switch 6 to the required position, as follows:
   - To cycle between all system ports, set switch 6 to OFF.
   - To cycle between active ports only, set switch 6 to ON.

3 Re-apply power to the ServSwitch TDX.

Resetting and restoring default settings

On occasions it may be necessary to reset the ServSwitch TDX or to remove all custom settings and return the ServSwitch TDX to its factory default state.

To reset the ServSwitch TDX

1 On the rear panel, click mini switch 8 to its ON position for a moment and then return it to its OFF position.

To restore default settings

1 Enter configuration mode: Press and hold the SELECT button until the SYSTEM readout shows ⊏.

2 On the connected keyboard, press Ⓕ and then press ⑧, followed by ⏎ to perform the restoration of the default settings. The SYSTEM readout will momentarily show ⊓ to confirm that the process is complete.

Upgrading

The internal software (firmware) of the ServSwitch TDX is designed to be easily upgraded in order to take advantage of a continual process of improvement and innovation. The supplied upgrade cable is required to connect the ServSwitch TDX to the serial port of a suitable system.

You can discover the current version of your ServSwitch TDX in two ways, either using the upgrade application (discussed later) or within the configuration mode as discussed next.

To discover the current firmware version

1 Enter configuration mode: Press and hold the SELECT button until the SYSTEM readout shows C.

2 You need to discover the three digits of the firmware release individually, as follows:

   • Press F 1 ↵ to discover the first firmware release digit.
   • Press F 2 ↵ to discover the second firmware release digit.
   • Press F 3 ↵ to discover the third firmware release digit.

   At each stage, the SYSTEM readout will momentarily show = and then the relevant digit, before returning to the C prompt. For example, the respective digits 1, 4 and 6 mean that the firmware version is v1.46.

3 Once completed, press E ↵ to exit from configuration mode.

To upgrade the ServSwitch TDX

1 Obtain the latest ServSwitch TDX firmware upgrade file from Black Box support. The upgrade files are compressed using pkzip format which you will need to decompress them. If you do not have pkzip, go to www.pkware. com to download the latest version. Place the decompressed upgrade files onto the Windows system that will be connected (via a vacant serial port) to the ServSwitch TDX unit.

2 Remove power from the ServSwitch TDX. If any systems are active, either switch them off or remove their keyboard link connectors from the ServSwitch TDX. If an optional power supply is used, remove it.

3 Connect the upgrade cable between the remote control socket on the end of the ServSwitch TDX unit, and a vacant serial port on the system containing the upgrade files.

4 On the underside of the unit, click mini switch 7 to its ON position.

5 Re-apply power to the ServSwitch TDX and switch on the system to be used for the upgrade. The SYSTEM readout will show ⊔.

6 Locate and run the application 'KVMUploader' to display this window:

7 Click the *Browse...* button and locate the TXT file that accompanied the upgrade utility. Highlight the TXT file and click the *Open* button.
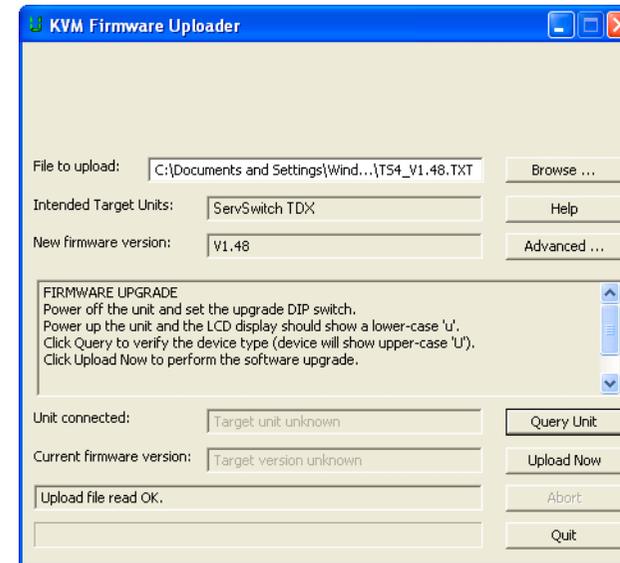
8 Click the *Advanced...* button and in the subsequent dialog, ensure that the *Serial Port* entry matches the port to which the upgrade cable is attached. Also select the *Program and verify* option. Click the *OK* button.

9 Click the *Query Unit* button to check the name and version of the current firmware - the application will interrogate the ServSwitch TDX via the upgrade cable. Once the version information is displayed, check that the *Intended Target Units* field matches the *Unit Connected* field and the *New Firmware Version* field exceeds that of the *Current Firmware Version*.

10 Click the *Upload Now* button to begin transferring the upgrade data from the system to the ServSwitch TDX. The progress of the upload is shown in the status bar (indicating the advancement of the current task) and the progress bar (indicating the progress of the upload as a whole). The SYSTEM readout will show ⊔.

   During the upload, all buttons become disabled except for the *Abort* button. The upload can take as long as fifteen minutes. Should you need to abandon the upload at any stage, click the *Abort* button.

   Following the upload, a verification will be carried out and the results displayed within the upgrade application window.

11 When complete, switch off the ServSwitch TDX, disconnect the upgrade cable, return mini switch 7 to its OFF position and resume operation of the ServSwitch TDX in the usual manner.

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Further information

Troubleshooting

If you experience problems when installing or using the ServSwitch TDX, please check through this section for a possible solution. If your problem is not listed here and you cannot resolve the issue, then please refer to the 'Getting assistance' section.

Mouse does not move cursor on screen.
- If you move the mouse and the activity indicator (dot on 7 segment display) does not flash then the ServSwitch TDX is not receiving data from the mouse. Check the mouse connection to the ServSwitch TDX, try resetting the mouse using the reset function or re-powering the ServSwitch TDX. If you are attempting to connect the ServSwitch TDX to a system with a PS/2 mouse connection that has not been powered down then you will need to use the mouse restoration functions.

Keyboard does not function or functions intermittently. Num lock light does not always come on when the num lock key is pressed.
- Some older keyboards were designed for use with specific systems and are not truly AT or PS/2 compatible. These are not common but if you experience problems try another keyboard.

Mouse causes channel to change.
- Some cheaper mice are not fully compatible with the ServSwitch TDX and can lose data causing the channel to be changed (if mouse switching of channels is enabled). Ensure that you are using a Microsoft compatible mouse driver on your system. Some other manufacturers' drivers may switch the mouse to use a proprietary mouse data format not supported by the ServSwitch TDX. If you have unplugged and re-connected a mouse to the ServSwitch TDX then ensure that you reset it using the mouse reset function.

**Mouse jumps around the screen after disconnecting the mouse cable or powering down the ServSwitch TDX.**
- The mouse data format may be out of synchronisation with that required by the system (PS/2 or Intellimouse). Try the 'restore Intellimouse' function (F6) to resolve the problem or repower the system.

Getting assistance

If you are still experiencing problems after checking the list of solutions in the Troubleshooting section then we provide a number of other solutions:

- Email   in the US: **techsupport@blackbox.com**
           in the UK: **techhelp@blackbox.co.uk**

- Phone   in the US: **724-746-5500**
           in the UK: **+44 (0)118 965 6000**

Upgrade cable pin out

9-way D-type female   **15-way D-type male**

RXD	② ———————— ⑩	TXD
TXD	③ ———————— ⑪	RXD
DTR	④	
DSR	⑥	
CTS	⑧	
GND	⑤ ———————— ⑨	GND
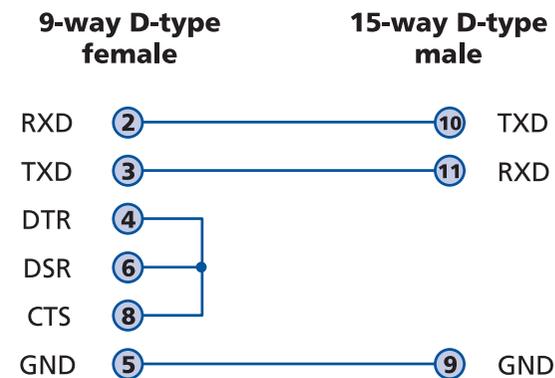
Safety information

- For use in dry, oil free indoor environments only.

- Not suitable for use in hazardous or explosive environments or next to highly flammable materials.

- The optional power adapter is only required when the link cables used exceed 2 metres in length. Otherwise the ServSwitch TDX can derive its power from any of the host systems via the keyboard connections.

- Warning – the optional power adapter contains live parts.

- No user serviceable parts are contained within the optional power adapter - do not dismantle.

- Do not use the optional power adapter if the power adapter case becomes damaged, cracked or broken or if you suspect that it is not operating properly.

- Replace the optional power adapter with a manufacturer approved type only.

- If you use a power extension cable, make sure the total ampere rating of the devices plugged into the extension cable do not exceed the cable's ampere rating. Also, make sure that the total ampere rating of all the devices plugged into the wall outlet does not exceed the wall outlet's ampere rating.

- Do not attempt to service the ServSwitch TDX unit or its remote control yourself.

- The optional power adapter can get warm in operation – do not situate it in an enclosed space without any ventilation.

- The ServSwitch TDX unit does not provide ground isolation and should not be used for any applications that require ground isolation or galvanic isolation.

- When using the optional power adapter, use only with a grounded outlet. When using a backup power supply (UPS), power the computers, the monitors and the ServSwitch TDX from the same supply.

Certification notice for equipment used in Canada

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications-network protective, operation, and safety requirements.

The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company.

The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly (extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility—in this case, your supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION:

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Radio Frequency Energy

A Category 5 (or better) twisted pair cable must be used to connect the ServSwitch TDX unit in order to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

All other interface cables used with this equipment must be shielded in order to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

European EMC directive 89/336/EEC

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 may 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, the user is encouraged to 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.

FCC Compliance Statement (United States)

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 J 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 may 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 manufacturer could void the user's authority to operate the equipment.

Canadian Department of Communications RFI statement

This equipment does not exceed the class A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

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 radioélectriques publié par le ministère des Communications du Canada.

Normas Oficiales Mexicanas (NOM) electrical safety statement

Instrucciones de seguridad

1 Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2 Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3 Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4 Todas las instrucciones de operación y uso deben ser seguidas.

5 El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.

6 El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7 El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8 Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9 El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10 El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11 El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12 Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13 Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14 El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15 En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16 El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17 Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18 Servicio por personal calificado deberá ser provisto cuando:

A: El cable de poder o el contacto ha sido dañado; u

B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

C: El aparato ha sido expuesto a la lluvia; o

D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

E: El aparato ha sido tirado o su cubierta ha sido dañada.

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