CPU Switch Dual Multi-Platform

User Manual *English*

LINDY Art No. 32353 (8 ports)
LINDY Art No. 32354 (16 ports)

About this manual

Safety information

● For use in dry, oil free indoor environments only.
● Do not attempt to service the LINDY CPU Switch Dual MP yourself.
● Follow all warnings and instructions marked on the LINDY CPU Switch Dual MP, its power adapter and its accessories.
● Warning - live parts contained within power adapter.
● No user serviceable parts within power adapter - do not dismantle.
● Plug the power adapter into a socket outlet close to the LINDY CPU Switch Dual MP.
● Replace the power adapter with a manufacturer approved type only.
● Do not use power adapter if power adapter case becomes damaged, cracked or broken or if you suspect that it is not operating properly.
● If you use a power extension cord with the LINDY CPU Switch Dual MP, make sure the total ampere rating of the devices plugged into the extension cord does not exceed the cord'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.

Warranty

LINDY warrants that this product shall be free from defects in workmanship and materials for a period of 3 years from the date of original purchase. If the product should fail to operate correctly in normal use during the warranty period, LINDY will either repair it free of charge, or, at LINDY's discretion, replace it free of charge. No liability can be accepted for damage due to misuse or circumstances outside LINDY's control. Also LINDY will not be responsible for any loss, damage or injury arising directly or indirectly from the use of this product. LINDY's total liability under the terms of this warranty shall in all circumstances be limited to the replacement value of this product. If any difficulty is experienced in the installation or use of this product that you are unable to resolve, please contact your supplier.

Radio Frequency Energy

Shielded cables must be used with this equipment 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.

Contents

1. Introduction

Thank you for purchasing the LINDY CPU Switch Dual MP. Your LINDY CPU Switch Dual MP is a very high performance Keyboard, Video monitor and Mouse (KVM) sharing device which supports a wide range of computer hardware and software platforms. The LINDY CPU Switch Dual MP supports multiple users and enables each user to independently access the connected computers.

The LINDY CPU Switch Dual MP is a multi-platform KVM switch that is designed for controlling computers that have different styles of keyboard and mouse ports. Cables are available to connect to PC PS/2 style ports (6-pin min-DIN connectors for keyboard and mouse, often coloured purple and green), USB style ports (common on many laptop and desktop PCs, Sun computers and Apple Mac computers) and Sun style ports (8-pin min-DIN connector for keyboard and mouse used on older style Sun computers). USB style keyboards and mice are available for all the different styles of computer that may be controlled and so the LINDY CPU Switch Dual MP supports USB devices to enable you to use your preferred style of keyboard and mouse.

An On-Screen-Display (OSD) menu system is provided for easy computer selection and control. This enables users to select computers by name or description without having to remember the port that the computer is physically connected to. The OSD menu system also provides a security structure that enables the system administrator to allocate access rights to each user on a login basis.

We trust that you will be delighted with the function of your new LINDY CPU Switch Dual MP. Product enhancement upgrades are provided free of charge during the warranty period and may be obtained from www.lindy.com. Some of the main features and benefits that are offered by your LINDY CPU Switch Dual MP are listed in section 1.1

LINDY explains:

What does KVM stand for?

Throughout this manual the abbreviation KVM is used to refer to the combination of a Keyboard, Video monitor and Mouse that is used to access a computer. A KVM console usually consists of a keyboard, monitor and mouse although sometimes only a keyboard and monitor may be used. Devices such as the LINDY CPU Switch Dual MP are generally known as KVM sharers or KVM switches.

What is a multi-platform KVM switch?

Multi-platform KVM switches enable you to connect to computers that have different styles of keyboard, video and mouse ports and control all the computers from a single keyboard, monitor and mouse.

1.1 Key features and benefits

● Enables many computers to be independently controlled by two users.

● Enables desktop and laptop PCs, Sun (USB), Sun (8-pin), Mac (USB), SGI, Alpha and RS/6000 computers to be controlled from a common KVM console.

● USB keyboard and mouse support enables KVM console devices to be chosen that are the most appropriate for multi-platform control (keyboards and mice for all the main computer types are available in USB format).

● On-screen menu allows computers to be selected by name or description.

● Configurable security enables the administrator to assign access rights to users.

● Two independent users are supported on all models.

● Advanced On-Screen Display (OSD) for easy control and configuration.

● Channel switching by OSD, front panel key, keyboard hotkey, or 3 button mouse.

● Supports high bandwidth monitors at resolutions up to 1920 x 1440.

● Fully flash upgradeable via the serial port.

● Supports a very wide range of software including Windows 3.X, WFWG, 95, 98, 2000, NT, ME, XP, DOS, Unix, Linux, NetWare, OS/2, BSD, Mac OS, Sun OS etc.

● Supports several computer keyboard styles: PS/2 (6-pin mini-DIN), USB, Sun (8-pin mini-DIN), AT (5-pin standard-DIN).

● Supports several computer mouse styles: PS/2 (6-pin mini-DIN), USB, Sun (8-pin mini-DIN), RS232 (9-pin D-type).

● Supports several computer video styles: High bandwidth analogue video signals with separate or combined sync signals presented on standard 15-way HD D connectors or 13W3 connectors.

● Video channels support Display Data Channel (DDC/DDC1/DDC2) signalling.

● Supports desktop and laptop PCs, Sun (USB), Sun (8-pin), Mac (USB), RS/6000, Alpha, and Silicon Graphics computers.

● Front panel "healthy voltage" indicator.

● Automatic detection of the country type of the controlling keyboard enables computers to configure themselves for the correct keyboard layout. Optionally, the country type may be specifically defined by the user.

● Support for up to 16 user access profiles and 512 named computers.

● The colours and position of the OSD menu may be changed by each user.

● OSD routing status window shows the computers that are currently being controlled by the KVM consoles.

● Supports three computer control modes - Exclusive, Shared and Video Only.

● Optional small-sized reminder banner permanently confirms the selected computer.

● Compact 1U (model 32353) and 2U (model 32354) cases may be neatly fitted under a monitor or fixed into a 19 inch rack.

● SmartBoot ensures reliable simultaneous bootup of all computers.

● User and computer name information may be uploaded to a PC and saved in an Excel compatible file. This file may be edited in Excel and downloaded back to the LINDY CPU Switch.

● Can be cascaded to a depth of four levels to provide a video switching network.

● Automatically restores keyboard and mouse states when channel changed.

● Supports PC keyboard modes 1,2 and 3 and PC mouse prompt and stream modes for maximum compatibility.

● Includes screen saver, auto-scan and name search options.

● Supports moving or blank screen savers and auto-logout on screen save option.

● Wheel mouse may be used to launch and operate the OSD menus.

● User may select English, French, German or Swedish OSD menus.

● Supports user definable hotkeys and mouse modes.

● Positive confirmation of selected ports on local and cascaded LINDY CPU Switches achieved by full acknowledgement signalling across all cascaded units.

● Supports Microsoft IntelliMouse, IntelliMouse Explorer and other common wheel mice.

● Mouse restoration functions to enable 'hot plugging' of certain systems.

● Front panel controls may be locked for secure operation.

● Standard colour-coded cable connections make installation easy and inexpensive.

● Auto-scan list feature enables scanning of selected computers.

1.2 LINDY CPU Switch Dual MP package contents

● LINDY CPU Switch Dual MP.

● Power supply suitable for your country.

● 6 x stick on self-adhesive rubber feet.

● A CD-ROM containing this manual (in PDF format).

1.3 LINDY CPU Switch Dual MP rackmount kit for model 32353 (Part No. 32285)

● 2 x mounting brackets for fixing the unit into a 19 inch rack.

● 4 x screws for fixing mounting brackets to LINDY CPU Switch Dual MP.

1.4 LINDY CPU Switch Dual MP rackmount kit for model 32354 (Part No. 32295)

● 2 x mounting brackets for fixing the unit into a 19 inch rack.

● 6 x screws for fixing mounting brackets to LINDY CPU Switch Dual MP.

1.5 Product information

Indicators show keyboard and mouse data activity on user ports 1 and 2

Power status indicator shows the state of the power supply attached to the power inlet

Computer selection key - used to select the computer port (shown on red display) that is to be attached to the user port shown on the green display

Green display shows the currently selected user port. The computer port that is connected to this user port is shown on the red display

Fixing points for 19 inch rack mounting brackets

Red display shows the computer port that is connected to the user port shown on the green display

User selection key - used to select the user port (shown on green display)

Indicators show keyboard and mouse data activity on user ports 1 and 2

Power status indicator shows the state of the power supply attached to the power inlet

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Fixing points for 19 inch rack mounting brackets

Red display shows the computer port that is connected to the user port shown on the green display

User selection key - used to select the user port (shown on green display)

Fig. 1 - LINDY CPU Switch Dual MP (32353 and 32354 models) viewed from the front

Blue monitor connections

User port 1 - for connection to a keyboard, video monitor and mouse

User port 2 - for connection to a keyboard, video monitor and mouse

Computer ports 1 to 8 for connection to CPUs

Serial communic- ations port - used for download and upload of data to and from a PC

M3 screw thread for earthing or to attach power cord strain relief

Power connection

Special function switches -used to perform upgrades. Set OFF (up) for normal operation

USB keyboard and mouse connections

Green computer mouse connection

Blue computer monitor connection

Purple computer keyboard connection

Fixing points for 19 inch rack mounting brackets

User port 1 - for connection to a keyboard, video monitor and mouse

Blue monitor connection

User port 2 - for connection to a keyboard, video monitor and mouse

Computer ports 1 to 16 for connection to CPUs

Serial communic- ations port - used for download and upload of data to and from a PC

M3 screw thread for earthing or to attach power cord strain relief

Power connection

Special switches -used to perform upgrades. Set OFF (up) for normal operation

USB keyboard and mouse connections

Green computer mouse connection

Blue computer monitor connection

Purple computer keyboard connection

Fixing points for 19 inch rack mounting brackets

Fig. 2 - LINDY CPU Switch Dual MP (32353 and 32354 models) viewed from the rear

2. Installation

2.1 What you will need

For the computer connections you will need:

● Cables to connect the LINDY CPU Switch Dual MP to each of your computer keyboard, video and mouse ports.

There are three main types of cable available from LINDY that connect to PS/2, USB or Sun systems. You may also need one or more cabling adapters if you have older type 5-pin DIN keyboard connectors, 9-pin serial mouse connectors or 13W3 video connectors. Cabling and adapter specifications and part numbers are given appendix A. (You do not need to connect a mouse cable if you are not using the mouse).

● A suitable mouse driver for your computers. Supported types are:
-   General mouse drivers that are supplied with the operating system (PC, Sun, Mac etc.)

- PC PS/2 or RS232 two button mouse driver (any manufacturer).
- Microsoft mouse driver (including IntelliMouse).
- Logitech mouse driver (including two button, three button and wheel mouse).

● You may also need one or more of the following adapters. These adapters may be obtained from your LINDY CPU Switch Dual MP supplier and other good retailers.

Video adapter - 13W3 male connector to 15 pin D-type connector
(LINDY Part No. 70127)
If you have a Sun computer with an older style 13W3 video connector then you will need an adapter to convert this to the 15 way D-type format.

Keyboard adapter - 6 pin mini-DIN female to 5 pin standard DIN male
(LINDY Part No. 70130)
If you have a PC with an older style 5 pin standard DIN connector then you will need an adapter to convert this to the 6 pin mini-DIN format.

Mouse adapter - 9 pin D-type female to 6 pin mini-DIN female
(LINDY Part No. 70058)
If you have a PC with an older style RS232 mouse connection then you will need an adapter to convert this to the 6 pin mini-DIN format. There are several specifications of these adapters that are provided with various mice. They all look the same but unfortunately there are several common wiring schemes all of which are different. To ensure that you have the right adapter, either purchase this from your LINDY CPU Switch Dual MP supplier or check your adapter against the wiring specification given in Appendix A.

For the user port connections you will need:

● A monitor with a standard VGA-style 15-pin analogue video connector that will work when connected directly to each of your computers. LINDY CPU Switch Dual MP supports low and high resolution monitors.

● A USB keyboard.

USB keyboards are available in Sun, PC and Mac styles. Each style has a slightly different layout and different numbers of keys. Any USB keyboard may be used but for maximum ease of use you are recommended to choose a keyboard style with at least as many keys as the native keyboard style for the computers that you wish to connect. This will avoid the need to use key combinations to create any missing keys

(e.g. the Stop, Again, Props and Undo keys for Sun systems). Sun keyboards have more keys than standard PC keyboards which have more keys than Mac keyboards and so if you are controlling a mixture of computers that include any Suns you are recommended to use a Sun keyboard.

● A USB mouse.

The LINDY CPU Switch supports most 'Internet / scroll mice' that are compatible with the Microsoft IntelliMouse and Sun and Mac mice.

2.2 Mounting the LINDY CPU Switch

The LINDY CPU Switch Dual MP has been designed to be used either on a desktop or mounted in a 19 inch rack. If the LINDY CPU Switch is to be used on a desktop then you will need to stick the supplied self-adhesive rubber feet to the underside of the LINDY CPU Switch. If the LINDY CPU Switch is to be mounted in a 19 inch rack then you will need to fit the rack mounting brackets to the side of the LINDY CPU Switch.

2.3 Connecting your devices

Ensure that the power is disconnected from the LINDY CPU Switch and all devices which are to be attached. Connect any keyboards, monitors and mice to the user port connectors at the rear of the LINDY CPU Switch (see figure 2). The individual connectors are colour coded for your convenience. If you are connecting several KVM (Keyboard, Video monitor, Mouse) sets then you do not need to use the same brands or mix of devices on each user port.

Next, connect each computer system unit in turn using the LINDY interface cables that you have purchased for use with the LINDY CPU Switch Dual MP (see Appendix A for cable specifications and part numbers). These are colour coded and should connect directly to the various ports on your computers. Remember that the video quality is maximised if the cables are kept as short as possible. Where possible, 2 metre cables are recommended as these will give very high video quality. Any unused computer connections can be left unconnected. The three main cables type are shown in figure 3.
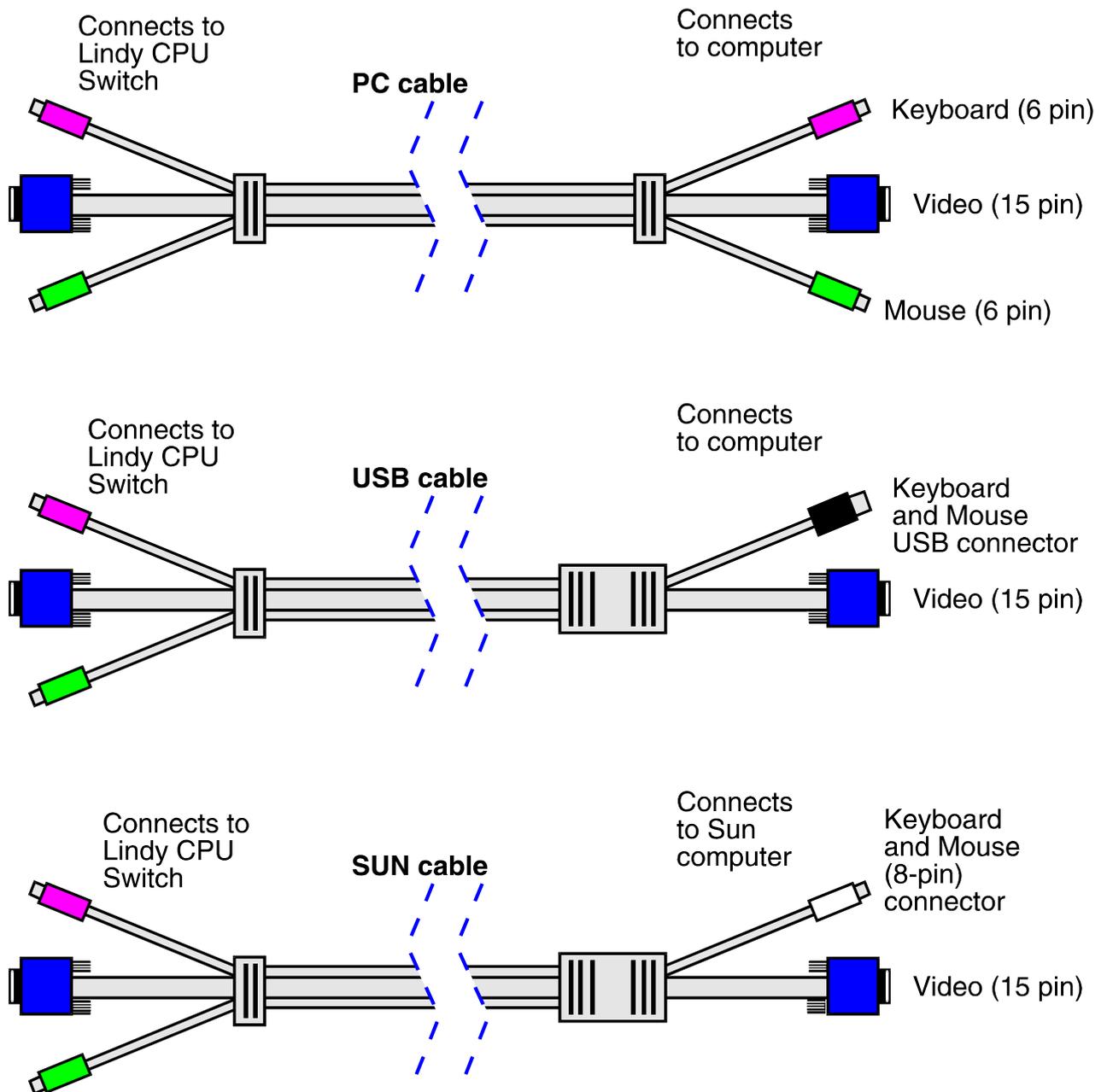
Figure 3 - LINDY CPU Switch Dual MP cables.

See appendix A for part numbers and ordering information

To connect PCs with serial mouse connections and AT style keyboard connections use the PC cable together with the adapters specified in appendix A. If you have an existing 6-pin mini-DIN to 9-pin serial adapter that came with a mouse it may not be suitable for use with the LINDY CPU Switch as there are several different standard wiring configurations for these adapters.

PS/2 to AT
keyboard adapter
(Part No. 70130)

Connects
to computer

PC cable

PS/2 to RS232
mouse adapter
(Part No. 70058)
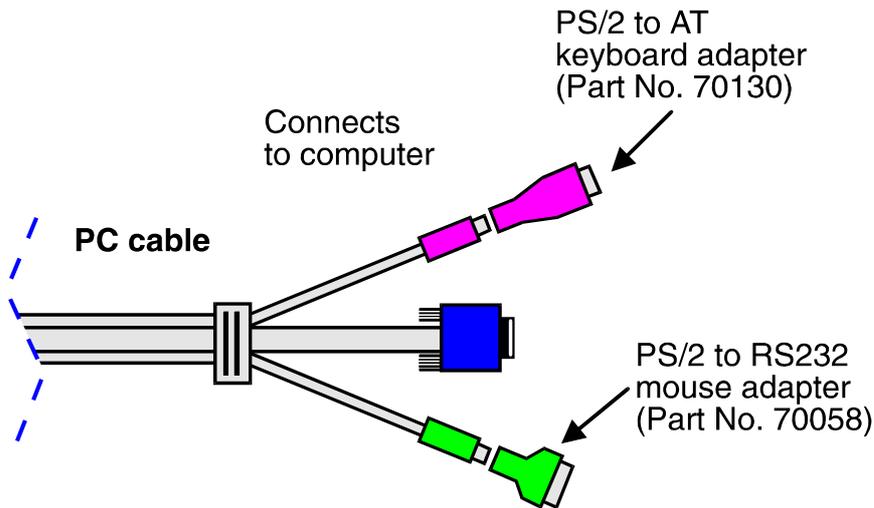
To connect Sun computers with older style 13W3 video connections you will need to use the Sun cable together with a 13W3 to 15 way D-type video adapter.

13W3 to 15 pin D-type
video adapter
(Part No. 70127)

Connects
to Sun
computer

SUN cable
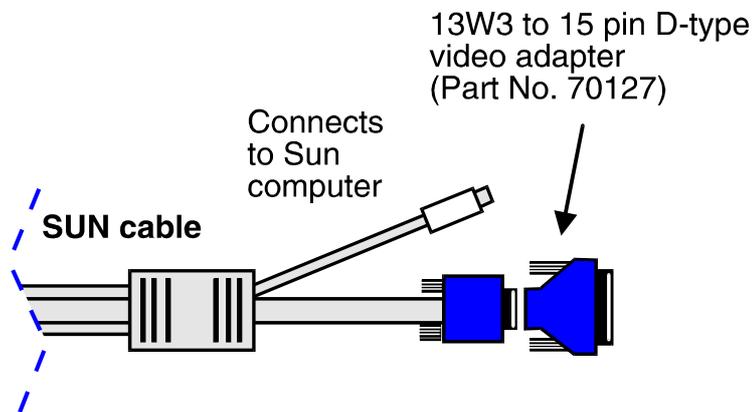
The LINDY CPU Switch is now ready for connection to the mains using the mains power adapter supplied. It is important to apply power to the LINDY CPU Switch first, then power on the monitor and each of the computers in turn. Failure to switch the LINDY CPU Switch and computers on in the correct order can lead to the mouse and/or keyboard not being recognised by the computers when they are switched on. There is no ON/OFF switch and the LINDY CPU Switch will start to operate as soon as the power is applied.

2.4 Configuring your computers

Configure your computers in the same way that you would if your keyboard, mouse and monitor were all connected directly. If you are connecting PC computers then please bear in mind the following:

● LINDY CPU Switch emulates Microsoft compatible serial, IntelliMouse and PS/2

mice, so ensure that your PC software is configured for a Microsoft mouse of the correct type. Refer to the list of supported drivers in section 2.1.

2.5 Structuring your LINDY CPU Switch Dual MP installation

A single LINDY CPU Switch Dual MP 32354 may be used to manage and control up to 16 computers (see figure 4). For larger numbers of computers, Dual MP units may be cascaded in a tree structure with LINDY CPU Switch Dual products to form a video switching network (see figure 5). The LINDY CPU Switch unit at the top of this tree structure is normally used to control all the cascaded LINDY CPU Switches although other configurations are possible.

The LINDY CPU Switch Dual MP and LINDY CPU Switch Dual are fitted with an intelligent communication system that enables it to detect and communicate with other LINDY CPU Switches so that it is able to positively verify that all the cascaded LINDY CPU Switches have correctly responded to a switching request from the user. The LINDY CPU Switches communicate with each other via the keyboard cables.

LINDY CPU Switch Dual MP may be cascaded in a very flexible manner. Either 1 or 2 links may be made between cascaded LINDY CPU Switches. The number of independent users supported by the system is determined by the number of cascade links that have been installed. If two cascade links are made then two users have simultaneous access to ports on the cascaded LINDY CPU Switches. The LINDY CPU Switch intelligently manages the cascade links and allocates them on a first come first served basis rather like a telephone network.

LINDY CPU Switch Dual MP may also be cascaded to some other LINDY KVM switches although some restrictions may apply. Please consult LINDY or your supplier if you would like more information.

When cascading LINDY CPU Switch Dual MP keep in mind the following rules

● The maximum number of layers in a LINDY CPU Switch Dual MP / Dual cascade is four.

● You may cascade Dual MP / Dual units with 1 or 2 KVM links. The number of KVM links that you install defines the number of simultaneous uses that are supported.

● The Dual MP unit should be used as the master (i.e. at the top of the tree). All other levels should be Dual products.

● Keep all cascade cables as short as possible. The video quality is maximised by using the shortest possible total cable run from computer to KVM.

● If you are making multiple cascade links then ensure that the cables are approximately the same length.

● You must choose groups of cascade ports from the following table. When you cascade using a group of ports the system will allocate the first available free port in that group (see section 4.10 and 4.15 for more details)

All ports may be used as a single cascade link	Possible groups of ports for dual cascade links and their associated group numbers
	PORT GROUP
1	1 ⎤ 21
2	2 ⎦
3	3 ⎤ 22
4	4 ⎦
5	5 ⎤ 23
6	6 ⎦
7	7 ⎤ 24
8	8 ⎦
9	9 ⎤ 25
10	10 ⎦
11	11 ⎤ 26
12	12 ⎦
13	13 ⎤ 27
14	14 ⎦
15	15 ⎤ 28
16	16 ⎦

The following diagrams show some typical LINDY CPU Switch Dual MP installations.
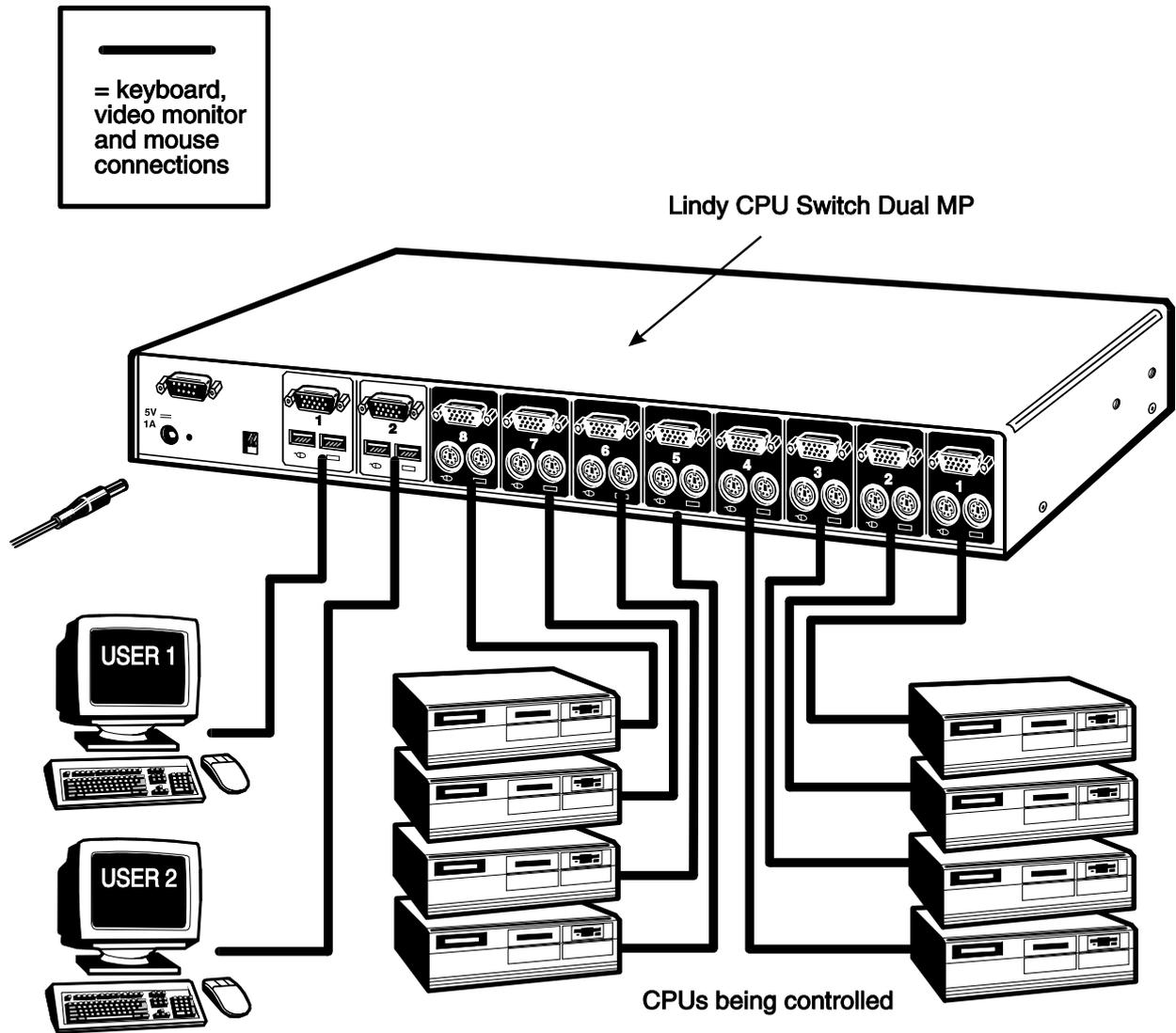
Fig. 4 - A typical installation using a single LINDY CPU Switch Dual MP 32353

USER 1

USER 2

LEVEL 1

CPU Switch
Dual MP

MASTER
UNIT ON
CASCADE
LEVEL 1

Port
group
23

Port
group
21

CASCADE LEVEL 2

CPU Switch
Dual Junior

CASCADE
LEVEL 3

CPU Switch
Dual Junior

2 simultaneous users
can access these CPUs

2 simultaneous users can access these CPUs because all cascades have 2 links
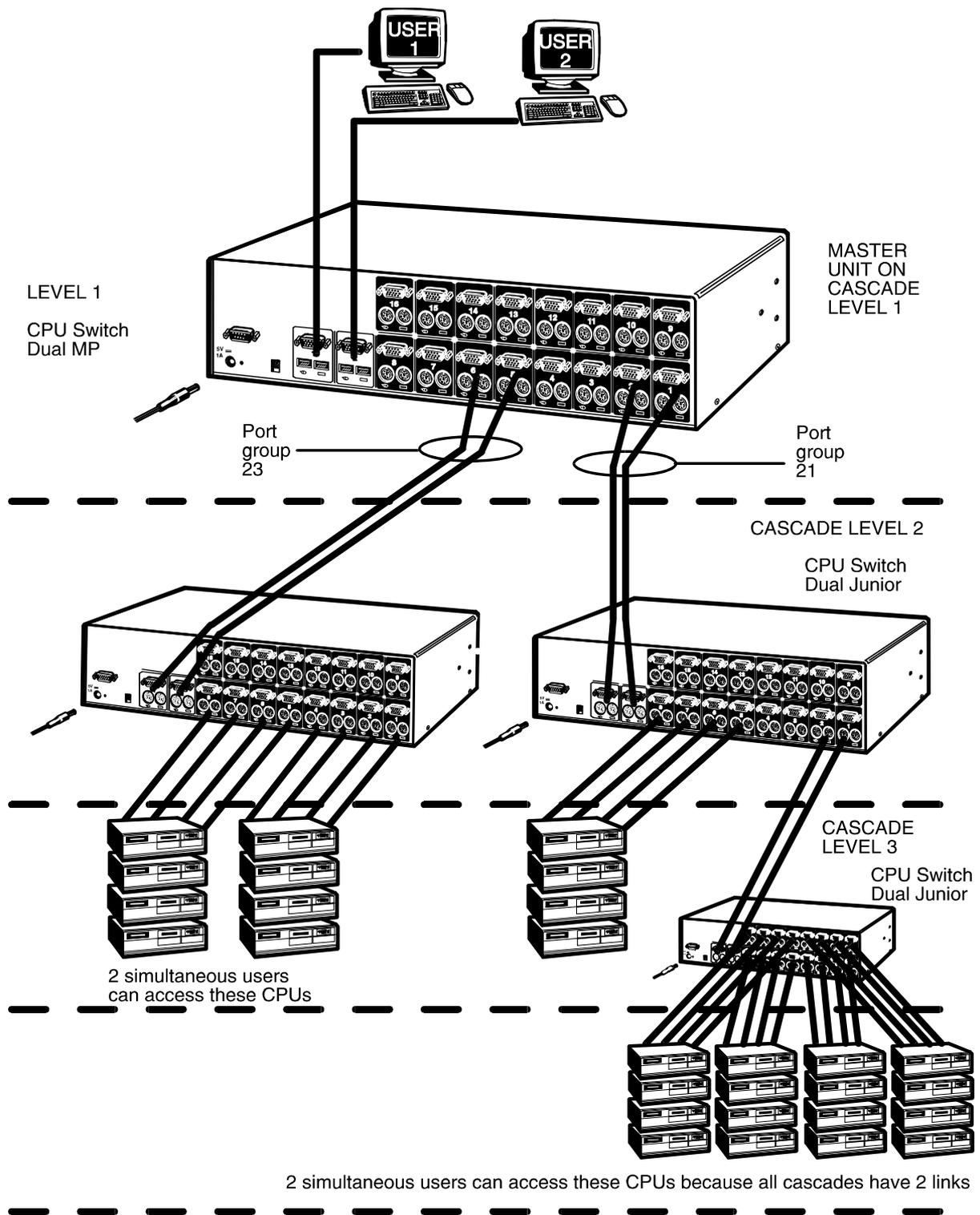
Fig. 5 - A cascaded application using multiple LINDY CPU Switch Dual units

2.6 Maximising the video quality

The LINDY CPU Switch Dual MP supports very high bandwidth video signals and resolutions up to 1900 x 1440 pixels. It regenerates the video signals using wideband amplifiers in order to minimise any loss of video quality. All video cables introduce distortion onto the video signal. For short cables this is minimal but for longer cables the loss of quality can start to become noticeable particularly at higher video resolutions. To maximise the video quality of your LINDY CPU Switch Dual MP installation we recommend the following:

● Use the shortest possible video cables between your devices. High quality two metre long cables will give excellent results.

● Avoid using cables with 15-pin D-type connectors that are not specifically designed to carry video signals - you will see a picture but the quality will be truly appalling with smudging, ghosting and loss of focus. Cables that are designed to carry video signals are constructed using three separate co-axial cores to carry the red, green and blue signals. These co-axial cores make the cable thick like the cable that you see coming out of the back of a monitor. Typically this cable will be 8.5 to 9 mm in diameter. If your cable is thin (say 6mm in diameter) or does not look like the cable you would expect to see coming out of a monitor then it may well be an unsuitable 'data' cable. Such cables are only suitable for very low resolution DOS-style screens.

● Where possible use a single cable of the correct length rather than multiple extension cables. If you must use an extension cable then make sure that it is a cable that is specifically designed to carry video signals.

● When cascading LINDY CPU Switches use the shortest possible cables between units. Structure the installation so that the maximum cable run between computers and KVMs is minimised. If possible keep this distance to below 30 metres (100 feet).

● For longer distances use the LINDY extender.

2.7 Other useful installation information

Intelligent cables – The USB and Sun cables contain miniature active circuits that are moulded into the ends of the cable assembly. These circuits intelligently provide signals to your computers that make them think that a keyboard and mouse are continuously attached, even if the LINDY CPU Switch is not connected or powered on. This increases the reliability and robustness of the installation.

PC boot up sequence - When your PCs are powered on they communicate with any attached keyboards and mice and setup parameters required by the particular operating system. It is necessary for the LINDY CPU Switch to be attached and powered on during this sequence so that it can give the required responses and keep track of all the modes and settings requested by each of the connected PCs.

Mouse characteristics - do not unplug a PS/2 mouse connection from a PC whilst the PC is on. Due to the design of PS/2 mice communications the mouse function on the PC will be lost and you will have to re-boot the PC to regain normal operation. RS232 mice can usually be unplugged and plugged back in provided that a mouse was connected when the operating system initially booted.

Keyboard and mouse mode switching - The LINDY CPU Switch keeps a log of the keyboard and mouse mode and resolution settings requested by each of the connected PCs. These settings are automatically restored to the shared keyboard and mouse when the LINDY CPU Switch channel is switched thus ensuring maximum software compatibility. The keyboard num, caps and scroll lock states are an obvious example of this process.

2.8 Hot plugging the LINDY CPU Switch into running systems and re-enabling disconnected CPU PS/2 mouse connections

It is advisable to switch off the systems that are going to be connected to the LINDY CPU Switch before installation. However if this is not possible then most systems can be hot plugged by using the LINDY CPU Switch's mouse restoration functions. The keyboard connection will normally restore itself automatically.

On many PCs, mouse movement will be lost if the PS/2 mouse is unplugged and plugged back in whilst the PC is running. Mouse movement can then only be restored by rebooting the PC. This is because the mouse drivers only setup and enable the mouse when the PC is initially booted.

If you have switched off your LINDY CPU Switch or you are attempting to 'hot plug' it into a system that is already running, you may be able to restore lost mouse movement using the LINDY CPU Switch's mouse restoration functions.

Mouse restoration functions should be used with care as unpredictable results may occur if the wrong mouse type is selected. If in doubt restore the mouse by powering down the PC normally.

Standard PS/2 mouse data uses a different data format to IntelliMouse data and so two reset functions are provided on the LINDY CPU Switch. The type of data format expected by the PC depends upon the driver and the type of mouse that was connected when the driver was booted. The following table may be used as a guide. Note that the mouse reset functions predict the likely mouse resolution settings but may not restore the speed or sensitivity of the mouse exactly as they were when the PC originally booted.

Type of mouse / system connected at bootup	Driver type	Likely expected data format	Suggested restoration
PS/2	PS/2 only	PS/2	Standard
PS/2	IntelliMouse	PS/2	Standard
IntelliMouse / CPU Switch	PS/2 only	PS/2	Standard
IntelliMouse / CPU Switch	IntelliMouse	IntelliMouse	IntelliMouse

To restore lost mouse movement on a CPU connected to the LINDY CPU Switch:

1) Select the CPU that has lost its mouse movement
2) Activate the on-screen menu using the keyboard hotkeys
3) Press F1 to view additional menus
4) Select the FUNCTIONS menu
5) Select RESTORE STANDARD MOUSE or RESTORE INTELLIMOUSE
6) Exit the on-screen menu

3. Configuring the LINDY CPU Switch Dual MP

3.1 Configuration summary

The LINDY CPU Switch is configured using the on-screen menu system which is activated by default when you first power on the system. It may also be accessed by using the keyboard 'hotkeys' (see section 4.8) or by using the LINDY CPU Switch's front panel keys (see section 4.6). The following steps summarise a typical configuration process. For more advanced information on each of the configuration steps please refer to the appropriate sections of this manual shown in brackets.

Note: The LINDY CPU Switch is configured via the ADMIN user account. The LINDY CPU Switch will allow multiple users to be logged in under the ADMIN account but will only allow one of these users to be adding or editing computer names or user profiles or setting global and setup options at any one time.

Step 1 - Decide if you are going to use password security

The LINDY CPU Switch may be run with security enabled or disabled. With security disabled, all user ports have full access to all of the computers and full administration rights. The LINDY CPU Switch is shipped to you with security disabled. This mode is suitable for simple installations with a small number of users. Larger installations or systems with larger numbers of users will require password security to be enabled. In this mode, each user logs on to the system and is allocated access rights to defined computers by the system administrator. This mode is recommended for most systems (see section 3.2 for details on how to enable security). If you are not using security the go to step 4.

Step 2 - Create an ADMIN (administration) account password

The LINDY CPU Switch has a fixed user account that cannot be deleted, named ADMIN. This user account is the only one that is able to make important system changes. If you are going to be using security then you should allocate a password to this account (see section 3.3 for instructions).

Step 3 - Create user accounts

Login to the LINDY CPU Switch using the ADMIN account and add user profiles and passwords for each of the system users (see section 3.4). The LINDY CPU Switch supports up to 16 user profiles.

Step 4 - Add / edit names to identify your computers

Whilst you are logged into the LINDY CPU Switch using the ADMIN account, create names for each of the computers that you have attached to the system. The LINDY CPU Switch creates default names for each of its ports (Computer 1 to Computer 16). These default names may be edited as required. Whilst adding the computer names you can define which users will have access to each computer. Each computer has an associated 8 digit port number which defines its location. If you are using a single LINDY CPU Switch Dual MP then all the computers will have two digit port numbers (01 to 16). If you are cascading LINDY CPU Switches then each computer will have a four, six or eight digit port number depending on the number of cascade levels that have been connected (see section 4.10 for details).

Step 5 - Set the required SETUP OPTIONS and GLOBAL PREFERENCES

Use the ADMIN account to select the required SETUP OPTIONS and GLOBAL PREFERENCES. The SETUP OPTIONS menu is used to configure important system operating parameters such as security mode, language, hotkeys and control options. The GLOBAL PREFERENCES menu is used to select various timing characteristics and other options.

3.2 Enabling password security

The LINDY CPU Switch Dual MP may be operated with or without security enabled. With no security all users will have full administration rights and full access to all the connected computers. For systems with several users this may not be desirable. System security is enabled using the on-screen menu. The on-screen menu is activated automatically when you first switch on the LINDY CPU Switch but may also be selected using the keyboard hotkeys (see section 4.8) or the front panel controls (see section 4.6).

To switch on the password security system:

● From the main on-screen menu press **F1** for **MORE MENUS**.
● Select **SETUP OPTIONS** from the menu.
● Move the menu bar over the **SECURITY** option.
● Press **SPACE BAR** to enable security.
● Press **ESC** to quit from the menu.

3.3 Setting an ADMIN password

The LINDY CPU Switch Dual MP supports up to 16 user profiles. The administrator of the system can grant or deny users access to any of the connected computers and has complete control over the setup of the system. The administrator accesses the system via a special user named ADMIN. This profile may not be altered or deleted from the system and has full access rights to all computers and system parameters. Consequently it is advisable to set a password for this user.

To set a password for the ADMIN user:

● From the main on-screen menu press **F1** for **MORE MENUS**.
● Select **EDIT USER LIST** from the menu.
● Move the menu bar over the **ADMIN** user.
● Press **RETURN** or **ENTER** to edit the ADMIN user.
● Press **RETURN** or **ENTER** again to edit the ADMIN user's password.
● Make sure that the password you want is displayed.
● Press **RETURN** or **ENTER** to save the password.
● You will now see the "Edit Access Rights" menu. The ADMIN user always has access to all the computers. Press **RETURN** or **ENTER** again to quit from this menu.

3.4 Creating and editing user accounts

To create user accounts:

● Ensure that you are logged on as the ADMIN user.
● From the main on-screen menu press **F1** for **MORE MENUS**.
● Select **EDIT USER LIST** from the menu.
● Press **INSERT** to add a new user.
● Type in the name of the new user and press **RETURN** or **ENTER**.

● Type in the password for the new user and press **RETURN** or **ENTER**.
   (You may leave the password field blank if you do not want to define a password)
● Define the computers that you want this user to have access to using the **SPACE BAR** and function keys as directed on the menu. The user will have access to all the starred (selected) computers. Don't worry if all the computers have not yet been defined. You can allocate users access to computers when you add the computer names later.
● Press **RETURN** or **ENTER** to create the user.

Follow a similar process to edit users:

In the **EDIT USER LIST** use the menu bar to select the user that you want to edit. Press **ENTER** or **RETURN** to edit the user's name, password and access rights. Press **RETURN** or **ENTER** if you want to keep the existing entries.

3.5 Creating and editing computer names

Computer names provide a very convenient way of selecting and identifying computers that are attached to the LINDY CPU Switch Dual MP. You can select computers by port number (see sections 4.8 and 4.15) but when you have several computers it becomes hard to remember which computer is attached to which port. By defining descriptive computer names you can select the required computer from an on-screen menu without having to remember which physical port the computer is connected to. For each computer name that you define you can grant or deny access to any of the defined users.

Each computer name that you define will have an associated port number. This is the LINDY CPU Switch port that the computer is attached to. If all of your computers are connected to a single LINDY CPU Switch Dual MP then all the port numbers will be two characters long (for example: 01, 02, 03, 16 etc.). If you are cascading LINDY CPU Switch Dual MPs then the port numbers will be four, six or eight characters long depending upon whether you have two, three or four levels of cascade (see figure 7). See the end of this section and section 4.10 for an explanation of how the port numbers are constructed. The LINDY CPU Switch Dual MP supports up to 512 computer names.

To create computer names:

● Ensure that you are logged on as the ADMIN user.

● From the main on-screen menu press **F1** for **MORE MENUS**.
● Select **EDIT COMPUTER LIST** from the menu.
● Press **INSERT** to add a new computer name.
● Type in the name of the computer and press **RETURN** or **ENTER**.
● Type in the port number for this computer and press **RETURN** or **ENTER**.
● Define the users that you want user to have access to this computer using the **SPACE BAR** and function keys as directed on the menu. The starred users will have access to this computer. Don't worry if all the users have not yet been defined. You can allocate computers to users when you add the users later.
● Press **RETURN** or **ENTER** to create the new computer name.

When you are adding computers it is advisable to setup just one name for any particular port. Avoid creating two names for the same port as this can lead to confusion. Also, if you are using ports to cascade to other LINDY CPU Switches, avoid setting up unique names for individual ports that form part of a group of ports that are being used to cascade. For example, if you are using group 41 (ports 1,2,3 and 4) to cascade to another LINDY CPU Switch then avoid setting up individual names for these ports.

Follow a similar process to edit computer names:

In the **EDIT COMPUTER LIST** use the menu bar to select the computer that you want to edit. Press **ENTER** or **RETURN** to edit the computer's name or change the users who you want to have access to this computer. Press **RETURN** or **ENTER** if you want to keep the existing entries.

Creating entries for computers connected to cascaded LINDY CPU Switches

You can cascade LINDY CPU Switch Dual MP units using one or two KVM links. Section 2.5 explains the rules that you must follow when installing a LINDY CPU Switch cascade. The number of cascade links that you install determines the number of simultaneous users that can access computers on the cascaded LINDY CPU Switches. Ideally if you are cascading LINDY CPU Switch Dual units then you should use two cascade links as this will cause no blocking and will allow both users simultaneous access to all computers.

Each computer name that you add to the on-screen menu has an associated port number that tells the LINDY CPU Switch where to find the computer. Port numbers for computers attached to a single LINDY CPU Switch are simply the port number that the computer is attached to. Port numbers for computers connected to cascaded LINDY CPU Switches are constructed by defining the port routing that is required to get from the user's KVM to the computer.

Figure 6 illustrates how port numbers are constructed and how the physical configuration of a cascaded system relates to entries in the on-screen menu. The illustrated configuration is an unlikely configuration in practice but has been chosen for explanation purposes. If you make multiple cascade links then they must be connected to the groups of ports defined in figure 7. These ports have associated group port numbers. The LINDY CPU Switch uses this group port number to connect to the first available port in that group. For example, group port number 21 comprises of ports 1 and 2. If these ports are linked to a cascaded LINDY CPU Switch and users try to connect to computers that are attached to the cascaded LINDY CPU Switch, the system will allocate the cascade links to the first two users on a first come first served basis.

LINDY CPU SWITCH DUAL MP
Edit Computer List

Comms Server	09
Technical Server	16
Accounts Server	22220107
Firewall	212105
Internet Gateway	2109
Jim's Computer	222204
Voicemail Server	21222101
Web Server 1	21220301

Ins=Add   Del=Delete
F1=Clone   Enter=Edit
↑↓ =Select   F3=Find
Esc=Quit

21 22 21 01

Port number or cascade group number on master CPU Switch (cascade level 1)

Port number or cascade group number on cascaded CPU Switch (cascade level 2)

Port number or cascade group number on cascaded CPU Switch (cascade level 3)

Port number on cascaded CPU Switch (cascade level 4)

CPU Switch Dual MP — Master (Level 1)

16   09   22   21

16   09

CPU Switch Dual Jnr   CPU Switch Dual Jnr   (Level 2)

22   09   22   21

CPU Switch Dual Jnr   2109   CPU Switch Dual Jnr   CPU Switch Dual Jnr   (Level 3)

01   04   03   21   05

CPU Switch Dual Jnr   222204   CPU Switch Junior   CPU Switch Dual Jnr   212105

07   01   01   (Level 4)

22220107   21220301   21222101
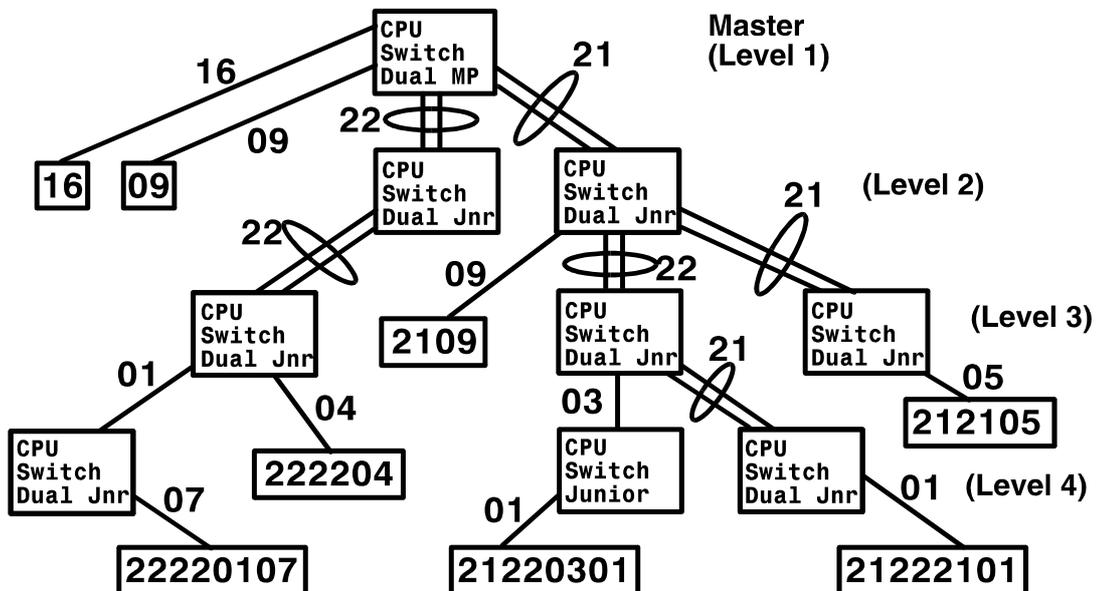
Fig. 6 - Creating menu entries for computers that are connected to cascaded LINDY CPU Switches

```
All ports                  Possible groups
may be used                of ports for dual
as a single                cascade links and
cascade link               their associated
                           group numbers


                           PORT    GROUP

       1                     1  ⌐
                                 ├ 21
       2                     2  ⌐
       3                     3  ⌐
                                 ├ 22
       4                     4  ⌐
       5                     5  ⌐
                                 ├ 23
       6                     6  ⌐
       7                     7  ⌐
                                 ├ 24
       8                     8  ⌐
       9                     9  ⌐
                                 ├ 25
      10                    10  ⌐
      11                    11  ⌐
                                 ├ 26
      12                    12  ⌐
      13                    13  ⌐
                                 ├ 27
      14                    14  ⌐
      15                    15  ⌐
                                 ├ 28
      16                    16  ⌐
```
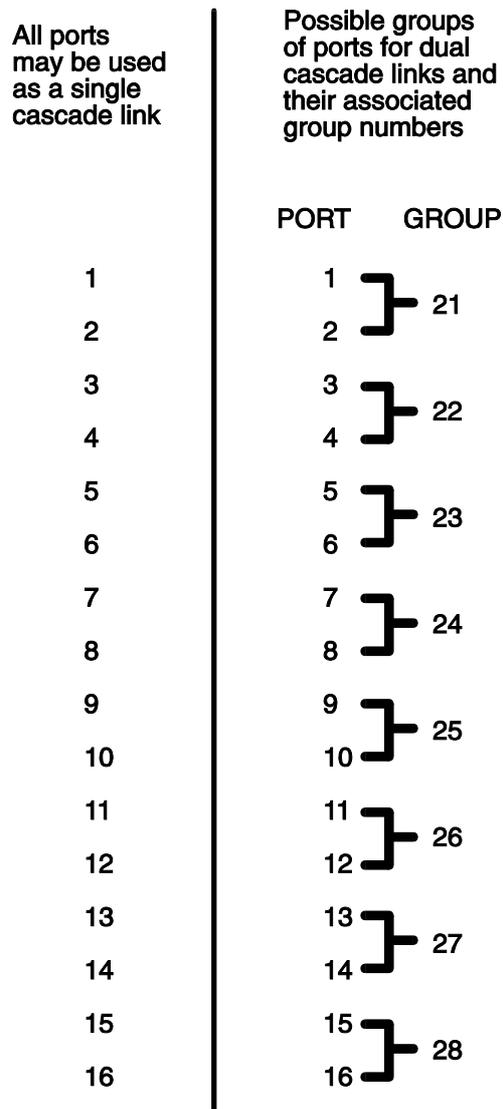
Fig. 7 - Possible cascade groups and their associated names

3.6 Setting the SETUP OPTIONS and GLOBAL PREFERENCES

The **SETUP OPTIONS** and **GLOBAL PREFERENCES** are system operating
parameters that apply to the whole system rather than to individual users. These may
only be setup or changed by the system administrator logged in using the ADMIN
account. From the main menu press **F1** for **MORE MENUS**. Use the cursor keys to
position the menu bar over **SETUP OPTIONS** or **GLOBAL PREFERENCES**. Press
ENTER or **RETURN** to view the individual menus. Use the cursor keys to place the
menu bar over the required option and then use **SPACE BAR** to change the option
as required. Press **ESC** to quit and save the changes.

3.6.1 SECURITY

Accessed from menu: SETUP OPTIONS
Settings: DISABLED, ENABLED

With security disabled there is no requirement for users to login to the system. All users have full access to all the connected computers and full administration rights. With security enabled, users are required to login to the LINDY CPU Switch. Each user is allocated access rights to computers by the system administrator and they are only able to see the computers that they have access to on their on-screen menu.

3.6.2 LANGUAGE

Accessed from menu: SETUP OPTIONS
Settings: ENGLISH, FRENCH, GERMAN, SWEDISH

This option specifies the language that is used for the on-screen menu and the keyboard layout that is assumed for the keyboard. When the French option is selected the keyboard is assumed to have an AZERTY format. When the English and German options are selected the keyboard is assumed to have a QWERTY format. The new language settings are enabled when you quit from the SETUP OPTIONS menu. The language option **only affects** the way that the LINDY CPU Switch interprets the keyboard keys, it does not affect the way that the computers interpret the keyboard. It is advisable to avoid setting a language that you do not understand as all the menus will change to use the new language and you may have difficulty reselecting your original language.

3.6.3 HOTKEYS

Accessed from menu: SETUP OPTIONS
Settings: CRTL+ALT, CTRL+SHIFT, ALT+SHIFT, ALT GR, LEFT ALT+RIGHT ALT, LEFT CTRL+LEFT ALT, RIGHT CTRL+RIGHT ALT, DISABLED

The keyboard hotkeys are special combinations of keys that, when used together with certain keyboard "command keys", perform special LINDY CPU Switch functions. For example, pressing the hotkeys together with the "M" key will cause the on-screen menu to be displayed on your monitor. Other hotkey combinations allow you to query which computer you are connected to and to move the on-screen menu around the screen. You can also use the hotkeys together with the port number to

quickly select a chosen computer without activating the on-screen menu. See section 4.8 for full details on using keyboard hotkeys to control the LINDY CPU Switch. We do not normally recommend that you disable the hotkeys but if you choose to do this then you will need to access the on-screen menu using the LINDY CPU Switch's front panel controls.

3.6.4 KEYPAD CONTROLS

Accessed from menu: SETUP OPTIONS
Settings: ENABLED, DISABLED

The key controls on the front of the LINDY CPU Switch may be disabled so that it is only possible to select the special channels "o" and "0" (the on-screen menu and the non-existent channel zero).

3.6.5 EXCLUSIVE USE

Accessed from menu: SETUP OPTIONS
Settings: ALLOWED, DISABLED

In normal operation, the LINDY CPU Switch will allow two or more users to share access to a computer. In this mode, the computer's video picture will be displayed on all the user's monitors but only one user may have active control of the computer's keyboard and mouse at any one time. The LINDY CPU Switch detects an active user by looking for keyboard and mouse data. A user becomes inactive if no keyboard or mouse data has been received by the LINDY CPU Switch for a specified timeout period. Whilst one user is active all the other users that are connected to the same computer will see a "video only" message displayed on their screen.

There may be situations where particular users want to be able to control and view their computers in private with exclusive use. The LINDY CPU Switch has the facility to allow users to select exclusive use of computers but this facility should be used with care. When exclusive use is requested the video from the selected computer is only available to the user with exclusive access. Users that have selected exclusive access are never timed out by the LINDY CPU Switch and so all other users are effectively "locked out" until the exclusive user switches to another computer or logs out.

This could potentially be very irritating if a user has selected exclusive use and has then left their desk without logging out. This would prevent other users from working

on the computer until they came back. Consequently the system administrator can disable all exclusive use so that all connections are shared.

3.6.6 AUTOMATIC LOGOUT

Accessed from menu: SETUP OPTIONS
Settings: DISABLED, ENABLED

The LINDY CPU Switch enables you to restrict access to your computers on a login basis. If a user forgets to logout when they have finished accessing the LINDY CPU Switch then the user console may unintentionally be left with full access to all the computers. The LINDY CPU Switch may be set to automatically logout unattended user consoles when the screen saver kicks in. This reduces the risk of security problems by preventing user consoles remaining in a permanent "logged-in" state when there is no keyboard or mouse activity. The automatic logout feature is only enabled when the screen saver feature is active (i.e. not disabled).

3.6.7 KEYBOARD COUNTRY and DEFAULT COUNTRY

Accessed from menu: SETUP OPTIONS
Settings: AUTOMATIC, MANUAL, DISABLED

Some computers query the keyboard to find out its country code and key layout. These computers use this information to configure the way that they interpret the keyboard data coming from the keyboard and so it is important for the correct country information to be supplied. Not all keyboards report country information and two different styles of keyboard may be connected to the LINDY CPU Switch. Consequently in AUTOMATIC mode the LINDY CPU Switch will attempt to query both the keyboards that are attached to try and find a country code (user port 1 is tested first). If a country code is not found then the LINDY CPU Switch will use the DEFAULT COUNTRY code specified by the user. In MANUAL mode, the connected keyboards are not queried for country information and instead the DEFAULT COUNTRY value is reported to all computers that request country information. In DISABLED mode no country information is supplied to computers requesting country information.

Keyboard Country Codes

Country	Code	Country	Code
Arabic	01	Persian (Farsi)	20
Belgian	02	Poland	21
Canadian-Bilingual	03	Portugese	22
Canadian-French	04	Russian	23
Czech Republic	05	Slovakian	24
Danish	06	Spanish	25
Finnish	07	Swedish	26
French	08	Swiss/French	27
German	09	Swiss/German	28
Greek	10	Switzerland	29
Hebrew	11	Taiwan	30
Hungary	12	Turkish-Q	31
International (ISO)	13	UK	32
Italian	14	US	33
Japan (Katakana)	15	Yugoslavia	34
Korean	16	Turkish-F	35
Latin American	17	Reserved	36-255
Netherlands	18	Not supported	00
Norwegian	19		

3.6.8 MOUSE SWITCHING

Accessed from menu: GLOBAL PREFERENCES
Settings: ENABLED, DISABLED

Like most LINDY KVM switches, the LINDY CPU Switch Dual MP's channel may be switched using a three button mouse or IntelliMouse (see section 4.9). Pressing the central button or wheel button together with the left hand mouse button will cause the LINDY CPU Switch to switch to the next available computer. When mouse switching is enabled the central mouse button or wheel mouse button is allocated to control the LINDY CPU Switch and is not therefore available for use by computer applications. If you want to use the central mouse button within your applications you will need to disable mouse switching. The rotation action of an IntelliMouse wheel is not affected and is always available to the computer application.

3.6.9 SCREEN SAVER

Accessed from menu: GLOBAL PREFERENCES
Settings: DISABLED; 2, 5, 7, 10, 15, 20 & 30 MINUTES

To avoid burning out the phosphor on CRT monitor screens, the LINDY CPU Switch can be set to blank the screen after no keyboard or mouse activity has been detected for a selected timeout period. If preferred, the user can blank the screen manually by selecting channel '0' using the keyboard hotkeys or by pressing ESC from the login screen.

3.6.10 AUTOSCAN MODE

Accessed from menu: GLOBAL PREFERENCES
Settings: SCAN LIST, ACTIVE PCs, ALL PCs

The LINDY CPU Switch supports an autoscan mode that automatically scans between the connected computers in sequence. The LINDY CPU Switch supports three autoscan modes. In the first mode the LINDY CPU Switch will scan all the named computers that are defined in the autoscan list (SCAN LIST). The computers defined in the scan list may be connected to cascaded LINDY CPU Switches. If you wish to scan the ports on the current LINDY CPU Switch then you may select ALL the available computers or just the available computers that are currently powered on (the ACTIVE computers). Scanning just the active computers avoids blank screens from being displayed and stops the monitor from going into a power down state on every scan cycle.

> **WARNING - Many modern monitors are fitted with automatic power save relays and will switch off after a few seconds if connected to an inactive PC. If you are using such a monitor you must not set the LINDY CPU Switch to scan ALL ports. Constant switching on and off of your monitor's relay will eventually damage your monitor. If you are using the SCAN LIST option then you should ensure that all the computers are active if you are using one of these monitors.**

If you choose to use the SCAN LIST option then you may define the computers to be scanned in the following manner.

To define the autoscan list

- Ensure that you are logged on as the ADMIN user.
- From the main on-screen menu press **F1** for **MORE MENUS**.
- Select **EDIT AUTOSCAN LIST** from the menu. A list of defined computers will appear. The starred computers will be autoscanned during the autoscan cycle.
- To add a computer to the autoscan list, move the selection bar over the computer name and press **SPACE BAR**. To add all named computers press **F1**. To remove

all named computers press **F2**.

● When all the computers that you wish to scan have a star to the right hand side of their name, press **RETURN** or **ENTER** to save the selections.

● The selected computers will be autoscanned in alphabetical order when you activate autoscan mode (when the SCAN LIST option is selected).

3.6.11 AUTOSCAN PERIOD

Accessed from menu: GLOBAL PREFERENCES
Settings: DISABLED; 2, 5, 7, 10, 15, 20, 30 SECONDS

The autoscan time defines the length of time that the LINDY CPU Switch will display video from an autoscanned computer before changing to the next computer. If the DISABLED setting is chosen then no autoscan functions will be available.

3.6.12 OSD DWELL TIME

Accessed from menu: GLOBAL PREFERENCES
Settings: 1, 2, 3, 5, 10 SECONDS

After a successful computer channel change the LINDY CPU Switch will display a confirmation message for a few seconds. The length of time that this confirmation message dwells on the screen may be changed. Options are 1, 2, 3, 5 & 10 secs.

3.6.13 USER TIMEOUT

Accessed from menu: GLOBAL PREFERENCES
Settings: 1, 2, 5, 10, 30 SECONDS; 1, 5, 10 MINUTES

When two users are connected to the same computer only one can have access at any one time. When no keyboard or mouse data has been received from the active user port for the user timeout period the LINDY CPU Switch will allow other users to access the computer. The new port then becomes the active port until it too times out. To avoid confusion between users it is desirable to set the timeout period to be sufficiently long so that user's work is not needlessly interrupted by other users and sufficiently short to ensure good overall system efficiency.

3.6.14 RS232 Mouse Type

Accessed from menu: GLOBAL PREFERENCES
Settings: INTELLIMOUSE, 2 BUTTON, 3 BUTTON

These settings control the type of RS232 mouse that the LINDY CPU Switch reports to computers. All the necessary conversions are dealt with automatically with the LINDY CPU Switch. The IntelliMouse setting sends four byte mouse reports to the computers and is therefore very slightly more sluggish than the others that send three byte mouse reports. RS232 mice are almost always more sluggish than PS/2 types because the data rate is much slower.

3.6.15 Mouse Type

Accessed from menu: GLOBAL PREFERENCES
Settings: MICROSOFT, LOGITECH

Most mouse drivers are compatible with Microsoft mice and so a "Microsoft compatible" mouse signalling protocol is suitable for most systems. In some installations, Logitech mouse drivers may disable the action of the mouse buttons when used with the "MICROSOFT compatible" signalling protocol implemented by the LINDY CPU Switch. To solve this problem select the "LOGITECH compatible" mouse signalling protocol.

4. Using the LINDY CPU Switch Dual MP

This section explains the general operation of the LINDY CPU Switch Dual MP. We recommend that you read this section before starting to use the product.

4.1 Rear panel special function switches

Before powering on the LINDY CPU Switch ensure that the two option switches on the rear are set to the OFF (up) position. Option switch 1 is reserved for future use and option switch 2 is used to enable firmware upgrades (see section 5).

4.2 Power supply connections and indicators

Plug the power adapter into the power inlet. The power indicator on the front of the LINDY CPU Switch (see figure 1) monitors the voltage that is being supplied to the power inlet. If the power indicator is illuminated then a healthy power adapter is connected.

4.3 USER display and key switch

The USER key selects the user port that is shown on the green USER display (see figure 1). Pressing the key will cause the green display to change to the next user port in numerical sequence. When the USER display is changed, the red COMPUTER display will also change to show the current connection status of the new user port. LINDY CPU Switch Dual MP models have 2 user ports.

4.4 COMPUTER display and key switch

The COMPUTER key selects the computer port that is to be connected to the user port that is currently displayed on the green USER display (see figure 1). Pressing the key will cause the red COMPUTER display to change to the next available computer port in numerical sequence. The next available computer port is defined by the way that the LINDY CPU Switch Dual MP is configured.

There are two special computer ports that may be selected using the COMPUTER key switch. These are the on-screen menu port 'o' and the non-existent channel zero '0'. Selecting the on-screen menu port will cause the on-screen menu or the login menu to be displayed. Selecting channel zero will cause the video to be disabled and all keyboard and mouse activity to have no effect upon any of the connected computers. These channels are provided as convenient places to 'park' user ports that are not currently in operation.

32353 models have a single digit COMPUTER display
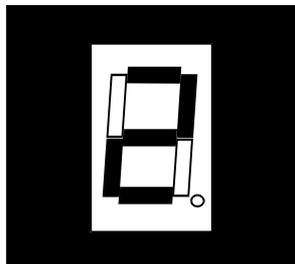
32354 models have a dual digit COMPUTER display
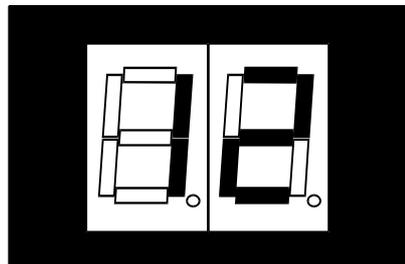
DISPLAY SHOWS		MEANING
Computer number is displayed and is not flashing		The user port shown on the green USER display is connected to the displayed computer port
Zero (0)		The user port shown on the green USER display is connected to the non-existent channel zero. No video picture is displayed on this user port.
Lower case 'o'		The user port shown on the green USER display is currently showing the on-screen display menu
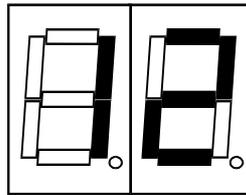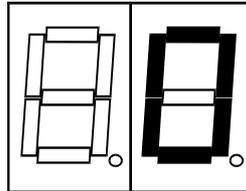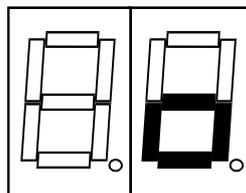
4.5 Activity indicators

The LINDY CPU Switch Dual MP has a front panel activity indicator for each user port (see figure 1). The indicator will flash when keyboard or mouse data is received by the LINDY CPU Switch. These indicators provide a useful confirmation that the keyboards and mice connected to the LINDY CPU Switch are functioning normally.

4.6 Selecting a computer using the front panel controls

To select a computer using the front panel controls, press the USER key until the green USER display shows the user port number that your keyboard and mouse are connected to. Then press the COMPUTER key until the red COMPUTER display shows the computer that you wish to connect to. Pressing the computer key will cause the computer channel to change to the next available port. If the password security system has not been enabled then this will be the next highest channel number in the sequence shown below. If password security has been enabled then you will only be able to select the computer ports that you have access to. If the front panel controls have been disabled by the administrator then you will only be able to select the special channels 'o' and '0' (the on-screen menu / login screen or non-existent channel zero).

Action of the COMPUTER key if no security has been set and the front panel controls are enabled

On-Screen Display

Maximum channel number 8 or 16

Channel "Zero"

Press Key → Press Key → Press Key → Press Key → 8 Press Key

0 → 1 → 2 → 3 – – – – – ► 16 → 0

Press Key
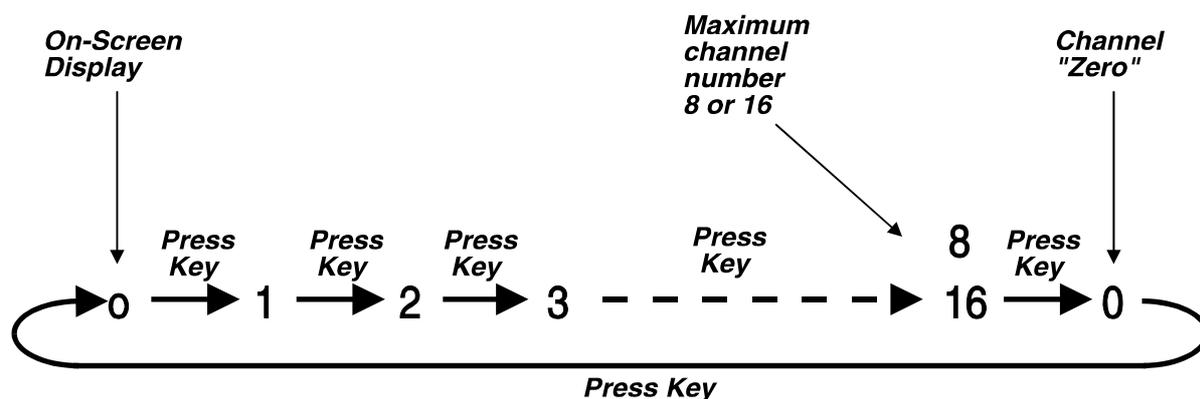
Action of the COMPUTER key if the front panel controls are enabled, security has been set and the current logged in user only has access to computer ports 1, 3 and 7
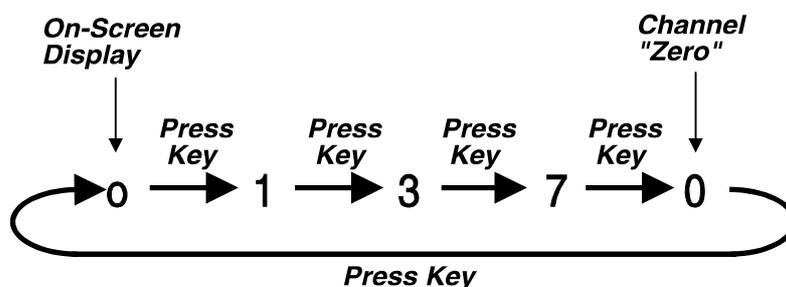
On-Screen Display

Channel "Zero"

Press Key → Press Key → Press Key → Press Key

0 → 1 → 3 → 7 → 0

Press Key

Action of the COMPUTER key if the front panel controls have been disabled.

On-Screen Display   **Channel "Zero"**

Press Key

0 → 0

Press Key
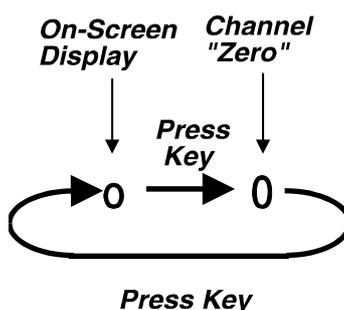
4.7 Logging on to the LINDY CPU Switch Dual MP

If password security has been set on the system then the following login menu will appear when the LINDY CPU Switch is switched on or when no user is currently logged in. The previous user may have activated the screen save function (screen blanking). If so, you may need to press a key before the login menu appears. Type in

you user name and password to access the LINDY CPU Switch.

Model name

```
 LINDY CPU SWITCH DUAL MP
   User Name:   ←
    Password:
 Port 1 login   Esc=Scr Save
```

**User port that you
are connected to**
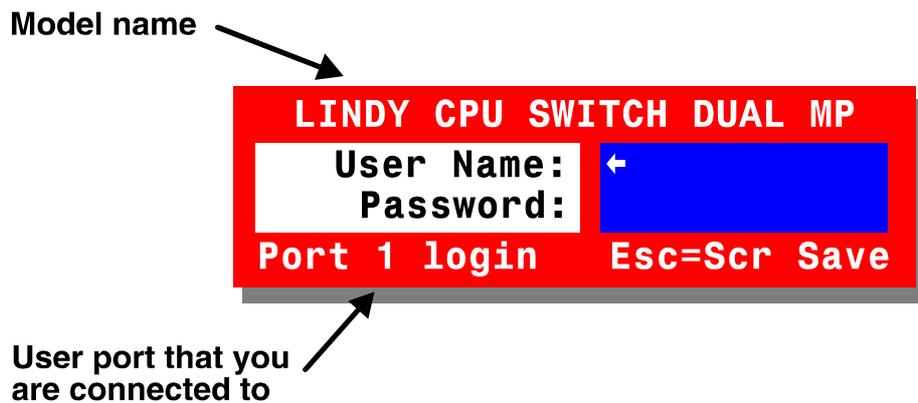
4.8 Keyboard hotkeys

The LINDY CPU Switch Dual MP can be conveniently controlled using special
keyboard hotkey combinations. These hotkey combinations can be used to select
computers and perform a number of other useful functions. All of the hotkey control
commands are invoked by holding down the hotkeys and then pressing a command
key. By default, the two hotkeys are 'CTRL' and 'ALT', although other combinations
can be selected by reconfiguring the hotkeys (see section 3.6.3). Once the hotkey
command has been activated you will need to release the hotkeys and the command
key before a new hotkey command is accepted by the LINDY CPU Switch.
HOTKEYs + TAB is an exception and this allows you to 'tab through' the ports by
holding down the hotkeys and repeatedly pressing TAB. HOTKEYs + the cursor keys
is also an exception. You can hold down the hotkeys and repeatedly press the cursor
keys to change the position of the on-screen menu.

The hotkey commands are summarised below (note that the numbers on the numeric
keypad do not form part of a valid hotkey). The hotkeys will only select the requested
channels if you have access rights to the requested channel.

Selecting computers using the hotkeys and the port number is most suitable for
systems with small numbers of computers. For systems with more computers it is
easier to use the on-screen menu for computer selection.

'HOTKEYs' and '1' - selects channel 1
'HOTKEYs' and '2' - selects channel 2
'HOTKEYs' and '3' - selects channel 3
'HOTKEYs' and '4' - selects channel 4
'HOTKEYs' and '5' - selects channel 5
'HOTKEYs' and '6' - selects channel 6
'HOTKEYs' and '7' - selects channel 7
'HOTKEYs' and '8' - selects channel 8
'HOTKEYs' and '9' - selects channel 9   (16 port models only)
'HOTKEYs' and '1 then 0' - selects channel 10   (16 port models only)
'HOTKEYs' and '1 then 1' - selects channel 11   (16 port models only)
'HOTKEYs' and '1 then 2' - selects channel 12   (16 port models only)
'HOTKEYs' and '1 then 3' - selects channel 13   (16 port models only)
'HOTKEYs' and '1 then 4' - selects channel 14   (16 port models only)
'HOTKEYs' and '1 then 5' - selects channel 15   (16 port models only)
'HOTKEYs' and '1 then 6' - selects channel 16   (16 port models only)

'HOTKEYs' and 'TAB' - selects the next available channel

'HOTKEYs' and 'M' - displays the on-screen menu for selecting computers by name (this is the recommended way of selecting computers for systems with more than 4 computers)

'HOTKEYs' and 'A' - selects autoscan mode where each channel is displayed for the selected time (see section 3.6.11). To cancel autoscan mode simply select any fixed channel either by hotkey or by using the on-screen menu or the front panel controls.

'HOTKEYs' and '0' – switches off the video signal. This will cause some monitors to go into standby mode or switch off. The video signal can be re-enabled by selecting a channel.

'HOTKEYs' and 'L' - Logs out the user if password security has been enabled or disables the video and selects the non-existent channel '0' if no security is set.

'HOTKEYs' and 'the cursor keys' - Moves the currently displayed on-screen menu around the screen.

'HOTKEYs' and '0 then {number}' – (where {number} is 0,1,2,3,4,5,6,7,8 or 9).

Selects the channel specified by {number}. This allows ports on cascaded units to be selected. For example HOTKEYs + 0 1032354 would select port 1 (01) on the current LINDY CPU Switch, port 2 (02) on the next cascaded LINDY CPU Switch and port 16 on the last LINDY CPU Switch.

Examples of common hotkey sequences (assuming CTRL + ALT hotkey option):

To select channel 2:

press `CTRL` `ALT` `2`   **release** `2` `CTRL` `ALT`

To 'tab through' channels:

press `CTRL` `ALT` `⇆`   **release** `⇆`   **press** `⇆`

release `⇆`   **press**   `⇆`   **release** `⇆` `CTRL` `ALT`

To select channel 12 (on a 16 port LINDY CPU Switch):

press `CTRL` `ALT` `1`   **release** `1`

press `2`   **release** `2` `CTRL` `ALT`

4.9 Selecting computers using the mouse

Computers may conveniently be selected using a three button mouse. In order to switch to the next computer simply hold down the central mouse button (the wheel mouse button on an IntelliMouse) and click on the left hand mouse button to select the next computer. If password security has been set then the LINDY CPU Switch will select the next available channel, otherwise it will select the next numerical channel. Mouse switching may be enabled or disabled (see section 3.6.8). When mouse switching is disabled the third button or wheel button state is 'passed through' the LINDY CPU Switch and seen by the application software.

Selecting computers using the mouse is most suitable for systems with small numbers of computers. For systems with more computers it is easier to use the on-screen menu for computer selection.
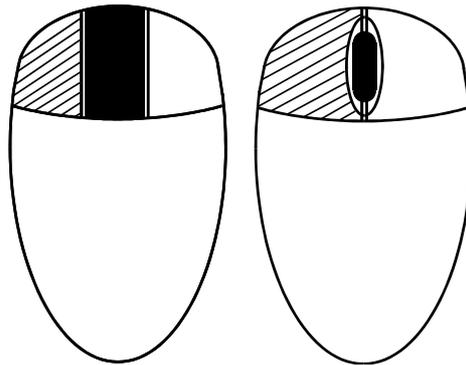
Hold down centre button (■)
Press and release left hand button
(▨) to select next computer

4.10 Selecting computers using the on-screen menu

You can conveniently select computers by name using the LINDY CPU Switch's on-screen menu. For systems with many computers this is the recommended method of computer selection. The on-screen menu is called up by pressing the 'HOTKEYs' and the 'M' key together. Its position on the screen may be moved using the 'HOTKEYs' and the cursor keys (see section 4.8)

For example, with the default hotkeys (CTRL + ALT) the key combination to launch the on-screen menu would be:

press CTRL ALT M **release** M CTRL ALT

You may also use a 3-button mouse or wheel mouse to launch the on-screen menu if you have enabled mouse control (see section 3.6.8). To do this, hold down the central button or wheel button and click the right hand button.
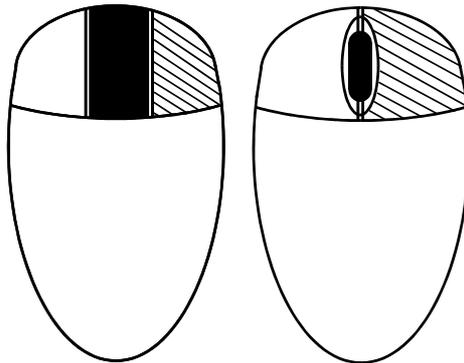
Hold down centre button (■). Press and release left hand button (◩) to launch the on-screen menu

When the menu is first called up, a set of default names will be listed. You will probably want to change these names to suit your computers (see section 3.5). When you launch the on-screen menu you will see a screen similar to that shown below.

Descriptive computer names (defined by administrator)

Port location for the computer

List of available computers. Use the cursor keys and the page up/down keys to scroll up and down the list

Indicator shows currently selected computer
← = shared access
+ = exclusive access
O = video only

CPU Switch user port

Menu bar

User login name

Connection status:
NOT CONNECTED,
SHARED USE,
EXCLUSIVE USE or
VIDEO ONLY

```
      LINDY CPU SWITCH DUAL MP
   Computer            Port
   Comms Server        01
   Technical Server    02
   Accounts Server     03
   Firewall            04         ←
   Internet Gateway    05
   Jim's Computer      06
   Voicemail Server    2201
   Web Server 1        2202
   User port 1     Status
   ADMIN           SHARED USE
   F1=More Menus    F3=Find
   Esc=Quit         F4=Logout
```

To connect to a computer, place the menu bar over the computer name using a combination of the up and down cursor keys and the page up / page down keys.

You may also use the wheel on a wheel mouse to move the menu bar up and down if you have enabled mouse control (see section 3.6.8).


Scroll down the on-screen menu

Scroll up the on-screen menu
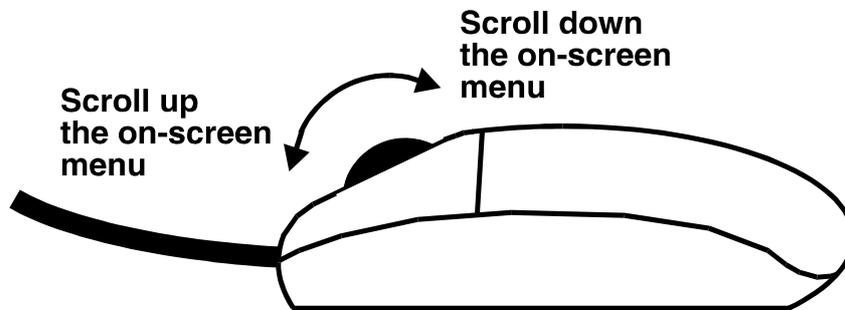
To select the computer with **SHARED** access press:

or
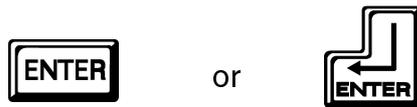
When a computer is selected in SHARED mode, the computer's video picture will be displayed on all the KVM consoles that are connected to that computer. Only one user will have control of the computer's keyboard and mouse at any one time. If no keyboard or mouse activity has been detected for the timeout period (see section 3.6.13) then other KVM consoles may gain control.

To select the computer with **EXCLUSIVE** access press:

or
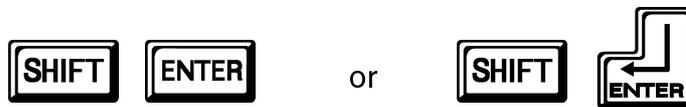
When a computer is selected in EXCLUSIVE mode, the computer's video picture will only be displayed on the KVM console that has exclusive access. Other KVM consoles will not be able to access the computer or view its video until the exclusive user has selected another computer or logged out. This mode prevents other KVM consoles from using the computer and so should be used with care.

To select the computer with **VIDEO ONLY** access press:

or
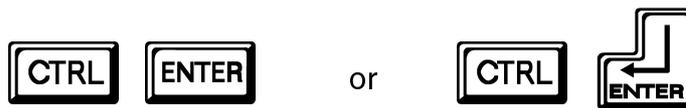
When a computer is selected in VIDEO ONLY mode, the computer's video picture will be displayed on the KVM console's monitor but the keyboard and mouse will not control the computer. The "VIDEO ONLY" message will be displayed under the confirmation banner if this has been enabled.

You may also use a 3-button mouse or wheel mouse to select a computer if you have enabled mouse control (see section 3.6.8).

To select a computer in **SHARED** mode use the left hand mouse button ( ) whilst the menu bar is positioned above the required computer name. To escape without selecting a new computer use the right hand mouse button.
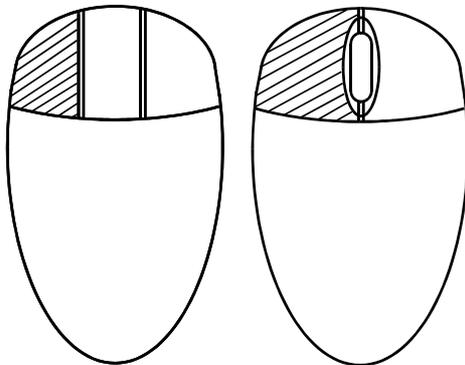
To select a computer in **EXCLUSIVE** mode, use the left hand mouse button together with the SHIFT key on the keyboard. To select a computer in **VIDEO ONLY** mode use the left hand mouse button together with the CTRL key on the keyboard.

If you have many connected computers then you can do an alphabetic search of the list of computer names by pressing F3 and then entering the name that you want to find.

When you select a computer the LINDY CPU Switch will briefly confirm the computer that has been selected by displaying a message. There may be situations where the selected computer cannot be accessed and in this case the LINDY CPU Switch will display an error message and wait for the user to press ESC before continuing. The LINDY CPU Switch may not be able to connect due to the following reasons:

● The requested port is being accessed exclusively by another user.
● There are no free cascade links available.
● The requested port does not exist.

LINDY CPU Switch confirms a successful connection

Computer that you have connected to

CPU Switch port that you have connected to

CPU Switch user port

User login name

```
Computer                Port
Comms Server            01
User port 1   Status
ADMIN         SHARED USE
```

Connection status:
NOT CONNECTED = not linked to any CPU Switch port
SHARED USE = linked to a CPU Switch port in "share" mode
EXCLUSIVE USE = linked to a CPU Switch port in "private"mode
VIDEO ONLY = linked to a CPU Switch port in "video only" mo

LINDY CPU Switch indicates an unsuccessful connection

Flashing failure message

Reason for failure

```
LINDY CPU SWITCH DUAL MP
Computer not available
Insufficient user rights
Press ESC to continue
```

4.11 The reminder banner

Normally the LINDY CPU Switch will display a discreet computer name reminder banner that reminds you which computer you are connected to. This banner will normally appear at the top of the screen in a central location and may optionally be disabled (see section 4.12.2). Many computer screens can look very similar and so this banner serves as a useful reminder of which computer you are working on. The colour and transparency of the banner can be selected to make it as discreet as possible. It may also be moved around the screen in any direction by using the 'HOTKEYs' together with the cursor keys.

For example to move the banner up the screen (assuming the default CTRL + ALT hotkeys) use:

CTRL   ALT   ↑

The computer name banner is also used to tell you that another user is using the computer that you are currently connected to. Whist the other user has control of the computer you will see the message "Video Only" below the computer name banner.

Screen background pattern (shown in black and white)
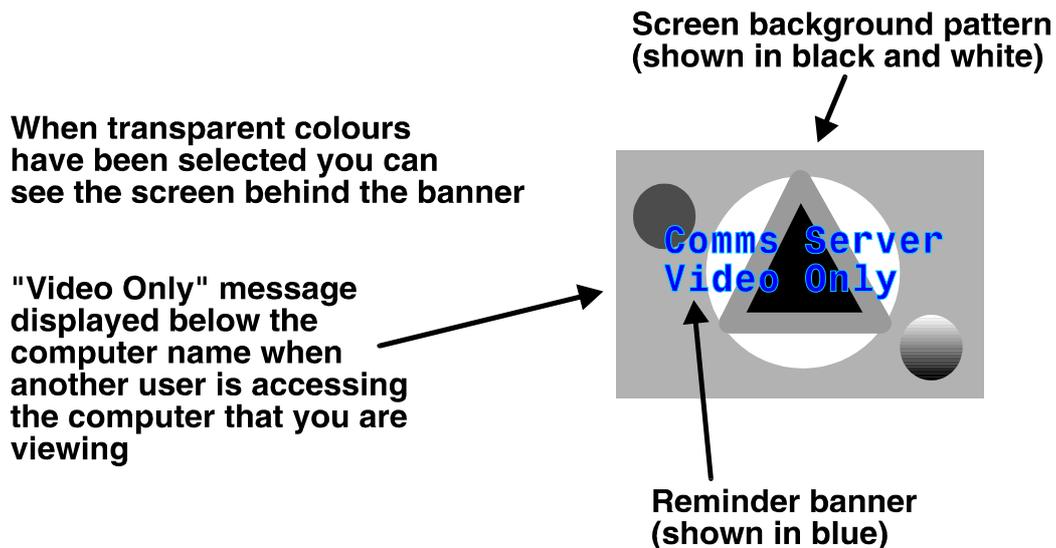
When transparent colours have been selected you can see the screen behind the banner

"Video Only" message displayed below the computer name when another user is accessing the computer that you are viewing

Comms Server
Video Only

Reminder banner (shown in blue)

4.12 Setting the USER PREFERENCES

The **USER PREFERENCES** are system operating parameters that are independently selectable for each user. From the main menu press **F1** for **MORE MENUS**. Use the cursor keys to position the menu bar over **USER PREFERENCES** Press **ENTER** or **RETURN** to view the preferences. Use the cursor keys to place the menu bar over the required option and then use **SPACE BAR** to change the option as required. Press **ESC** to quit and save the changes.

4.12.1 OSD COLOUR

Accessed from menu: USER PREFERENCES
Settings: DEFAULT, SCHEME 1, SCHEME 2

As you toggle between these options you will see the colour of the menu change to show the selected scheme. The menu schemes have been specially chosen to provide a high contrast with the colours that you would normally see on a computer screen.

4.12.2 REMINDER BANNER

Accessed from menu: USER PREFERENCES
Settings: ENABLED, DISABLED

When the reminder banner is enabled, the name of the currently selected computer

will appear in a small reminder banner. This is normally located at the top of the screen in a central position but may be moved as required (see section 4.8)

4.12.3 REMINDER COLOUR

Accessed from menu: USER PREFERENCES
Settings: BLUE/TRANS, PINK/TRANS, BLUE/WHITE, WHITE/RED

You may select the colour of the reminder banner. The BLUE/TRANS and PINK/TRANS select blue or pink text with a transparent background. The BLUE/WHITE and WHITE/RED settings select blue and white text on solid white and red backgrounds.

4.12.4 SCREEN SAVER TYPE

Accessed from menu: USER PREFERENCES
Settings: BLANK, MOVING DOT

You may select the type of screen saver. If you select BLANK then the screen will blank completely. If you select MOVING DOT then a moving dot will be displayed on a blank background. The dot regularly changes colour and bounces off the sides of the screen in a zigzag pattern.

4.13 Using the FUNCTIONS menu

The FUNCTIONS menu provides you with a number of useful functions that will help you to make the most of your LINDY CPU Switch. You can access the FUNCTIONS menu from the main on-screen menu by pressing F1 and selecting FUNCTIONS.

Standard users will be offered just two functions:

RESTORE STANDARD MOUSE and
**RESTORE INTELLIMOUSE**

If you have disconnected a mouse cable or you have switched the LINDY CPU Switch off then the mouse connection will normally be lost. To reconstitute the mouse connection use the mouse reset functions. See section 2.9 for a full explanation of how these functions work.

The ADMIN user is also given the option to **RESET TO FACTORY DEFAULTS**. This will clear all the computer and user names and set all parameters back to the factory defaults. To avoid activating this function by accident the administrator must confirm the reset instruction by pressing F8.

See section 4.19 for details on using the **SEND DATA TO RS232 PORT** and **READ DATA FROM RS232 PORT** functions. These functions are only available to the Admin user.

4.14 Querying the routing status

It is sometimes useful to know which KVM consoles are connected to which computers and their connection modes (shared, exclusive or video only). For example, if the LINDY CPU Switch denies you access to a particular computer you may wish to know if another KVM console has exclusive use of this computer and consequently is preventing your access. To query the routing status press F1 from the main on-screen menu and then select ROUTING STATUS. A routing status display similar to the one shown below will be displayed for 10 seconds. Press ESC to quit or wait for the routing status screen to disappear.

User 1 is the user attached to port 1 of the CPU Switch

```
           Routing Status
User 1    : ADMIN
Computer : main-file1
Port:2102      SHARED USE
User 2    : NIGEL
Computer : main-firewall1
Port:16        EXCLUSIVE USE
Esc=Quit
```

Name of user
Name of computer
Type of access
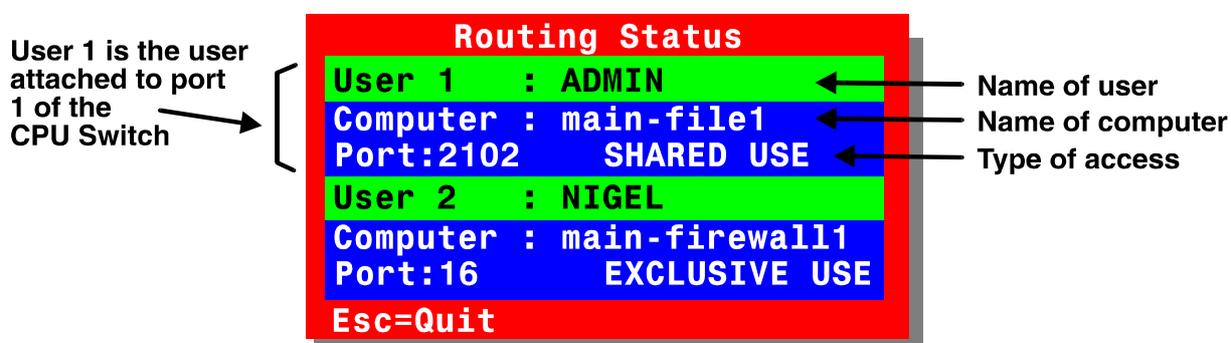
4.15 Cascading LINDY CPU Switches

LINDY CPU Switch Dual MPs can be cascaded in a tree structure to support larger numbers of computers. Up to four cascade levels are supported and the number of cascade links between LINDY CPU Switches can be chosen by the user.

The number of cascade links determines the number of users that may be accessing ports on the cascaded units simultaneously. The full rules that must be followed

when configuring a cascade of LINDY CPU Switches are given in section 2.5.

Although it is theoretically possible to select computers on cascaded units by pressing the hotkeys and then typing in the port address this would be highly confusing for users and is not generally recommended. Consequently it is normally advisable to use the on-screen menu to select computers on cascaded units.

However it is sometimes useful to be able to connect to ports on cascaded units via a specific cascade cable (rather than the first available of a group) in order to check that the cabling is working as expected. To do this you can use a hotkey sequence similar to the example shown below.

For example to connect to port 14 on a LINDY CPU Switch Dual MP that is cascaded off port 1 of your first LINDY CPU Switch Dual MP. Although the following example selects a port with a four digit address (port 0114) you can type port addresses that are eight digits long to access computers that are on the forth cascade level (e.g. Port 01140203).

press `CTRL` `ALT` `0` release `0`

press `1` release `1`

press `1` release `1`

press `4` release `4` `CTRL` `ALT`

4.16 Resetting user port keyboards and mice

The user port keyboards and mice may be reset by disconnecting then reconnecting the device. You may also disconnect devices and reconnect different devices.

4.17 Using the LINDY extender

Refer to the installation guide provided with your LINDY extender.

When using an LINDY extender we highly recommend that you set the extender's hotkeys to be different to the LINDY CPU Switch's hotkeys to avoid any confusion

4.18 What to do if you forget your ADMIN password

If you forget your ADMIN account password you will not be able to access the LINDY CPU Switch Dual MP to add or edit users and computer names. If this unfortunate situation does occur then you can resolve it by performing a complete reset to return the LINDY CPU Switch to its factory default state. A complete reset erases all the user names and computer names that you have setup. You can only perform a complete reset if you have access to both the front and the rear of the LINDY CPU Switch.

To perform a complete reset and return the LINDY CPU Switch to its factory default state:

1) Power on the LINDY CPU Switch normally.
2) Whilst the LINDY CPU Switch is powered on move switch 2 on the rear panel of the LINDY CPU Switch (labelled UPGRADE) to the ON (down) position.
3) Press the USER and the COMPUTER keys together.
4) The green USER display will show 'r' for a few seconds to confirm that a reset is taking place.
5) Return switch 2 to the normal OFF position (up).

4.19 Saving and restoring the menu configuration to and from an Excel compatible file.

The LINDY CPU Switch Dual MP will store up to 512 computer names and 16 sets of user access rights. If you have a cascade of LINDY CPU Switches then it may take some time to enter all the computer names and port numbers and decide on the access rights that you are going to grant to each user profile. Consequently, for peace of mind it is useful to be able to store these settings. This can be done by connecting a computer to the LINDY CPU Switch's RS232 serial port and uploading

to configuration settings. **You can only perform this function if you are logged onto the LINDY CPU Switch as the ADMIN user.** The file that is used to store the configuration settings has the additional advantage that it can be loaded into an Excel spreadsheet and edited to make changes to computer names and access rights. This edited information may then be downloaded back to the LINDY CPU Switch.

To save the menu names and configuration settings:

1. Logon to the LINDY website at www.lindy.com and download the files LDYREAD.EXE and LDYWRITE.EXE.

2. Connect the serial port on the rear of the LINDY CPU Switch Dual MP to a serial COM port on your computer using the serial cable supplied with the LINDY CPU Switch. If you have lost this cable then you may use a replacement cable with a 9-way female connector on one end and a 9-way male connector on the other end and all lines connected straight through (i.e. pin 1 to pin 1, 2 to 2, 3 to 3 etc.).

3. Run the program LDYREAD.EXE on the computer that is connected to the LINDY CPU Switch's serial port. Follow the instructions given by the program.

4. Make sure that you are logged onto the LINDY CPU Switch as the ADMIN user. From the main selection screen press F1 for **More Menus**. In the **Configuration Menu** select **Functions**. In the **Functions** menu select **Send Data to RS232 port.**

5. The LINDY CPU Switch should then send the configuration data to your computer. The LDYREAD program will store the data in a file named LDYDATA.CSV that will be created in the same directory that you ran the LDYREAD program from. Please ensure that you have sufficient rights to write to this directory.

To edit the menu names and configuration settings:

You may open the LDYDATA.CSV using a spreadsheet program such as Microsoft Excel. The format of a typical file is shown below. You will see that the computer names (rows) are tabulated against the user profiles (columns). To grant a user access to a computer, enter the value 1 in the box that is common to the computer's row and the user's column. To deny access, leave this box blank. To add extra users, add additional columns (up to 16 users). To add extra computers, add

additional rows (up to 512 computers). The ADMIN user will always be granted access to all computers regardless of the values entered.

USERS		ADMIN	Alan	Jim	Sue	Test
PASSWORDS		password	letmein	hello	logmein	Test
COMPUTERS	PORT					
Admin PC	2103	1	1	1	1	
Alan's System	2102	1	1	1		
Comms Server	3	1		1		
Comms PC	4	1	1	1	1	
Gateway 1	8	1				
Gateway 2	5	1				
Test System	15	1	1			
Web Browser	9	1		1		1

To restore the saved / edited menu and configuration settings:

1. Connect the serial port on the rear of the LINDY CPU Switch Dual MP to a serial COM port on your computer using the serial cable supplied with the LINDY CPU Switch.

2. Copy the program LDYWRITE and LDYDATA.CSV into the same directory on the PC that is connected to the LINDY CPU Switch's serial port.

3. Run the program LDYWRITE.EXE and follow the instructions given by the program.

4. Make sure that you are logged onto the LINDY CPU Switch as the ADMIN user. From the main selection screen press F1 for **More Menus**. In the **Configuration Menu** select **Functions**. In the **Functions** menu select **Read Data from RS232 port.**

5. The LINDY CPU Switch should then receive the configuration data to your computer and load the new menu names and access rights into the menu.

4.20 Switching channels by sending RS232 data

You can switch the LINDY CPU Switch Dual MP remotely by sending RS232 data to the serial communications port (located on the rear panel adjacent to the power

connectors). All data should be sent using the following RS232 protocol.

Baud: 19200, bits: 8, stopbits: 1, parity:none

No handshaking is implemented but valid command characters will be echoed back to the sender.

The top nibble (4 bits) of the command byte defines the user port that is to be switched (1=port 1, 2=port 2). The bottom nibble defines the computer port that the user port is to be switched to (e.g. 0=port 1, 1=port 2, E=port 15, F=port 16).

For example:

Hexadecimal code **14** switches user port 1 to computer port 5
Hexadecimal code **28** switches user port 2 to computer port 9
Hexadecimal code **2D** switches user port 2 to computer port 14

Special codes are:

Hexadecimal code **71** switches user port 1 to computer port 0 (off)
Hexadecimal code **72** switches user port 2 to computer port 0 (off)

The 9-pin female RS232 connector at the rear of the LINDY CPU Switch has the following pinout:
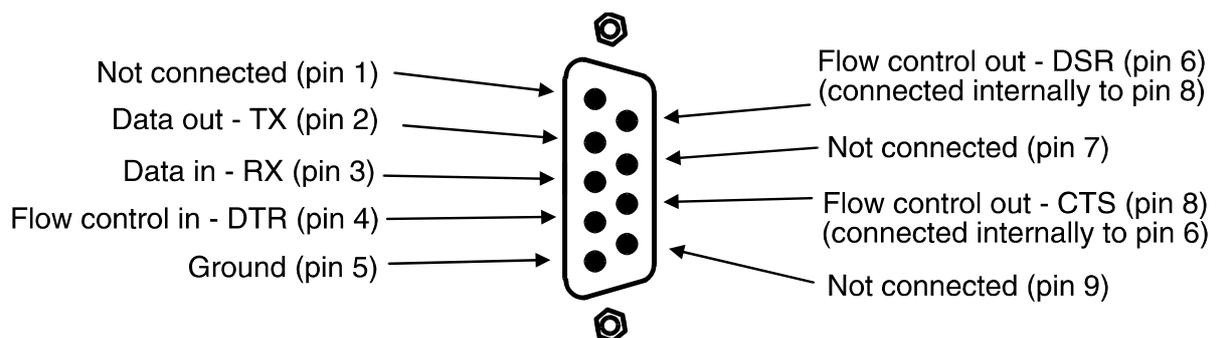

4.21 Keyboard equivalent key mappings

If you are connecting a mixture of IBM compatible PCs, Sun and Macintosh computers to the LINDY CPU Switch then you have several possible keyboard configuration options.

You may decide to connect a Sun, PC or Macintosh style keyboard to the LINDY CPU Switch. Generally, Sun keyboards have more keys than PC keyboards which have more keys than Mac keyboards. It is generally advisable to use a keyboard with the maximum number of keys that are expected by any of the connected computers (i.e. if you are connecting any Suns then you are recommended to use a Sun keyboard).

If you are using a Sun style controlling keyboard, the equivalent key mappings are:

Sun keyboard	IBM 104/105-key keyboard	Apple keyboard
Left Control	Left Ctrl	Left Control
Left Diamond (◆)	Left Win Start (⊞)	Left Command (⌘)
Left Alt	Left Alt	Left Option (alt)
Alt Graph	Right Alt or Alt Graph	Right Option (alt)
Right Diamond (◆)	Right Win Start (⊞)	Right Command (⌘)
No equivalent	Right Ctrl	Right Control
Compose	Win Right Mouse Click (▤)	No equivalent

If you are using a PC style controlling keyboard, the equivalent key mappings are:

IBM 104/105-key keyboard	Sun keyboard	Apple keyboard
Left Ctrl	Left Control	Left Control
Left Win Start (⊞)	Left Diamond (◆)	Left Command (⌘)
Left Alt	Left Alt	Left Option (alt)
Right Alt or Alt Graph	Alt Graph	Right Option (alt)
Right Win Start (⊞)	Right Diamond (◆)	Right Command (⌘)
Right Ctrl	No equivalent	Right Control
Win Right Mouse Click (▤)	Compose	No equivalent
Right Ctrl+F1	Stop	No equivalent
Right Ctrl+F2	Again	No equivalent
Right Ctrl+F3	Props	No equivalent
Right Ctrl+F4	Undo	No equivalent
Right Ctrl+F5	Front	No equivalent
Right Ctrl+F6	Copy	No equivalent
Right Ctrl+F7	Open	No equivalent
Right Ctrl+F8	Paste	No equivalent
Right Ctrl+F9	Find	No equivalent
Right Ctrl+F10	Cut	No equivalent
Right Ctrl+1	Mute	No equivalent
Right Ctrl+2	Volume -	No equivalent
Right Ctrl+3	Volume +	No equivalent
Right Ctrl+4	Power	No equivalent
Right Ctrl+H	Help	No equivalent

5. Upgrading the LINDY CPU Switch's firmware

The LINDY CPU Switch Dual MP uses flash memory technology which enables the firmware code to be upgraded by the user. New keyboards, mice operating systems and drivers are being launched all the time. From time to time the LINDY CPU Switch's firmware will be updated to provide support for these new devices. You can take advantage of these upgrades free of charge during the warranty period.

Upgrades are performed by connecting a PC's serial port to the LINDY CPU Switch's serial port and running an upgrade program on the PC. This upgrade program downloads the new firmware to the LINDY CPU Switch Dual MP and checks that the data has been programmed correctly.

You can check the version of the firmware that is currently loaded into your LINDY CPU Switch using the on-screen menu. To do this activate the on-screen menu using the keyboard hotkeys (see section 4.10) and then press F1. The version number of the current firmware will then be displayed at the bottom of the Configuration Menu.

To perform a firmware upgrade on your LINDY CPU Switch Dual MP you will need a suitable serial upgrade cable and an IBM PC compatible computer with an RS232 serial port and an operating system that supports DOS. Suitable upgrade cables with 9-pin serial connectors are provided with the LINDY CPU Switch Dual MP. If you have lost your cable then you will need to buy a cable with a 9-way D-type male connector on one end and a 9-way D-type female connector on the other end with all 9 lines connected "straight through" (i.e. pin 1 to pin 1, pin 2 to pin 2, pin 3 to pin 3 etc.). These are standard serial extension cables.

You will also need to obtain the latest version of the LINDY CPU Switch Dual MP firmware which is available by request from LINDY.

Note: The normal flash upgrade process does not clear the computer names, user names, security passwords or other configuration settings.

To perform a flash upgrade on the LINDY CPU Switch Dual MP:

Step 1 - Prepare your computers

Ensure that you have saved any important work on the connected computers. The LINDY CPU Switch Dual MP can be upgraded whilst attached to live systems but remember that the mouse connections will probably need to be reconstituted after the upgrade is finished (see sections 4.13 and 2.9). Where possible, mission critical servers should be switched off or disconnected before performing an upgrade.

Step 2 - Connect your computer to the LINDY CPU Switch Dual MP

Connect your computer's serial port (COM1 or COM2) to the LINDY CPU Switch Dual MP's serial port (see figure 2). You do not need to set the serial baud rate and protocol because the upgrade program will do this for you automatically (for reference, the RS232 baud rate used by the upgrade program is 19200 and the protocol is 8 bits, 1 stopbit and no parity).

Step 3 - Select flash upgrade mode using option switch 2 (labelled UPGRADE)

Move option switch 2 on the back of the LINDY CPU Switch Dual MP to the ON position (down).
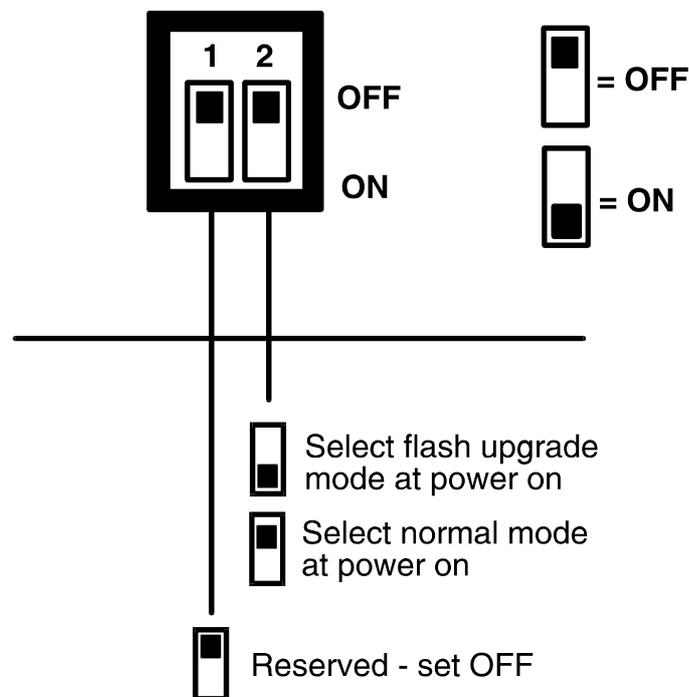
Step 4 - Power off the LINDY CPU Switch Dual MP

Remove the power from the Dual MP.

Step 5 - Power on the LINDY CPU Switch with the UPGRADE switch ON

Attach the power adapter to the LINDY CPU Switch whilst the UPGRADE switch is ON. The green USER display should now show a lower case 'u'. This indicates that the LINDY CPU Switch is ready to be upgraded.

The display should now show:
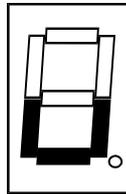
GREEN USER DISPLAY SHOWS		MEANING
Lower case U		CPU Switch is ready to be upgraded

Step 6 - Run the upgrade program

The latest version of the LINDY CPU Switch Dual MP firmware is available from LINDY . The upgrade files will be supplied to you as a group and consist of several files as explained below. These files should be downloaded to the same directory on your computer.

1) A universal upgrade program

LYDMP.EXE

2) Binary code files for each of the processors within the LINDY CPU Switch (up to 3)

e.g.   **M216A129.HEX**
                   M216B129.HEX
                   M216C129.HEX

These files use the following naming scheme. The first three numeric characters are the model type (e.g. 216 is an LINDY CPU Switch Dual MP model 32354 with 16 computer ports). The fifth character is the processor designation. The last three

characters represent the firmware release version (e.g. 129 equals version 1.29).

3) A data file that tells the upgrade program (LYDMP.EXE) which binary code files (HEX files) to download to the LINDY CPU Switch Dual MP and where to put each file. Theoretically this DAT file can be modified so that only certain processors are upgraded but do not do this unless specifically instructed by LINDY technical support.

e.g. **M216V129.DAT**

Like the hex files, the first three numeric digits represent the model number (e.g. 216 represents an LINDY CPU Switch Dual MP model 32354 with 16 computer ports). The next four digits represent the version number (e.g. V129 equals firmware version 1.29).

To upgrade the LINDY CPU Switch, check that the DAT file designation matches the model that you have. In other words, if you have an LINDY CPU Switch Dual MP with 16 computer ports and you want to upgrade to version 1.30 then the DAT file that you need would be named M216V130.DAT. Also check that all the required files are loaded into the same directory on your computer. From that directory run the upgrade file using the following command line.

LYDMP *{Dat_file_name}.*DAT

Where *{Dat_file_name}* is the name of the required DAT file

For example, if the name of the required DAT file is 216V129.DAT then use the following command line:

LYDMP M216V129.DAT

IMPORTANT NOTE

The upgrade programs are DOS based to enable compatibility with the widest range of operating systems. They run efficiently on DOS, Windows 3.X, Workgroups, 95, 98, ME and Windows NT. The upgrades will take approximately 10 minutes but vary slightly according to the LINDY CPU Switch model and the speed of the PC. Upgrades run from PCs using Windows 2000 will take very substantially longer due to the way that this operating system handles the DOS programs. The upgrade will be reliable but may take around 3 hours to complete!

Follow the instructions given on the screen to perform the upgrade. When the upgrade is complete the program will confirm that the upgrade has been successful and then quit.

Step 7 - Switch the UPGRADE key to the OFF position and cycle the power

Switch the UPGRADE switch on the rear of the LINDY CPU Switch to the OFF position and disconnect the power. When the power is re-applied the LINDY CPU Switch will operate using the new firmware.

Some useful issues to bear in mind when performing flash upgrades
The upgrade program rewrites the LINDY CPU Switch's firmware code. If the upgrade process is interrupted then the LINDY CPU Switch will have invalid code and will not be able to operate. It is therefore good practice to ensure that the upgrade process is always fully completed. A partial or failed upgrade may be rectified by performing another upgrade. If the upgrade process is interrupted accidentally then you should immediately repeat the upgrade process without moving switch 2 from the upgrade (ON) position. Switch 2 forces the LINDY CPU Switch into flash upgrade mode and prevents the upgraded code from being run. Running faulty or partially upgraded code may have unpredictable results and may damage your LINDY CPU Switch or computing equipment. For obvious reasons, the code that the LINDY CPU Switch uses to perform upgrades is not itself upgradeable - a common problem on some flash upgradeable products that could effectively be destroyed by a partial upgrade!

WARNING - Running faulty or partially upgraded code may have unpredictable results and may damage your LINDY CPU Switch or computing equipment.

6. Special features of the Dual MP

6.1 Synchronising LINDY CPU Switch Dual MPs for multiple video head applications

Multiple LINDY CPU Switch Dual MPs may be connected together so that they operate in a synchronised manner. Synchronised operation is useful for applications that require multiple video signals to be switched together. This type of operation is usually required where each computer is fitted with multiple video cards or video cards with multiple video heads. Such configurations are typically required in banking and engineering applications where greater video 'real estate' is required. Whenever the LINDY CPU Switch's channel is switched it sends an RS232 command out on its serial interface. The LINDY CPU Switch switches its channel if it receives the same command on its serial interface. Consequently, by linking the serial interfaces a master unit may be made to automatically switch a daisy chain of slaved units as shown in the diagram below.

It should be noted that the synchronisation cable deliberately does not have the transmit pin of the Slave End connector linked to the receive pin of the Master End connector. To do so would cause the Slave unit to be able to switch the Master unit. This would setup an endless cyclical switching sequence that would prevent the LINDY CPU Switches from operating correctly.

The LINDY CPU Switch Dual MP may be synchronised with other LINDY KVM switches that support compatible synchronisation features. These include the LINDY CPU Switch Dual Junior and CPU Switch Dual / Quad products running firmware versions of 1.12 or higher.

Slave unit switches in
synchronisation with
master unit

SLAVE

RS232 synchronisation
cable.

MASTER

Computers
fitted with dual
video heads
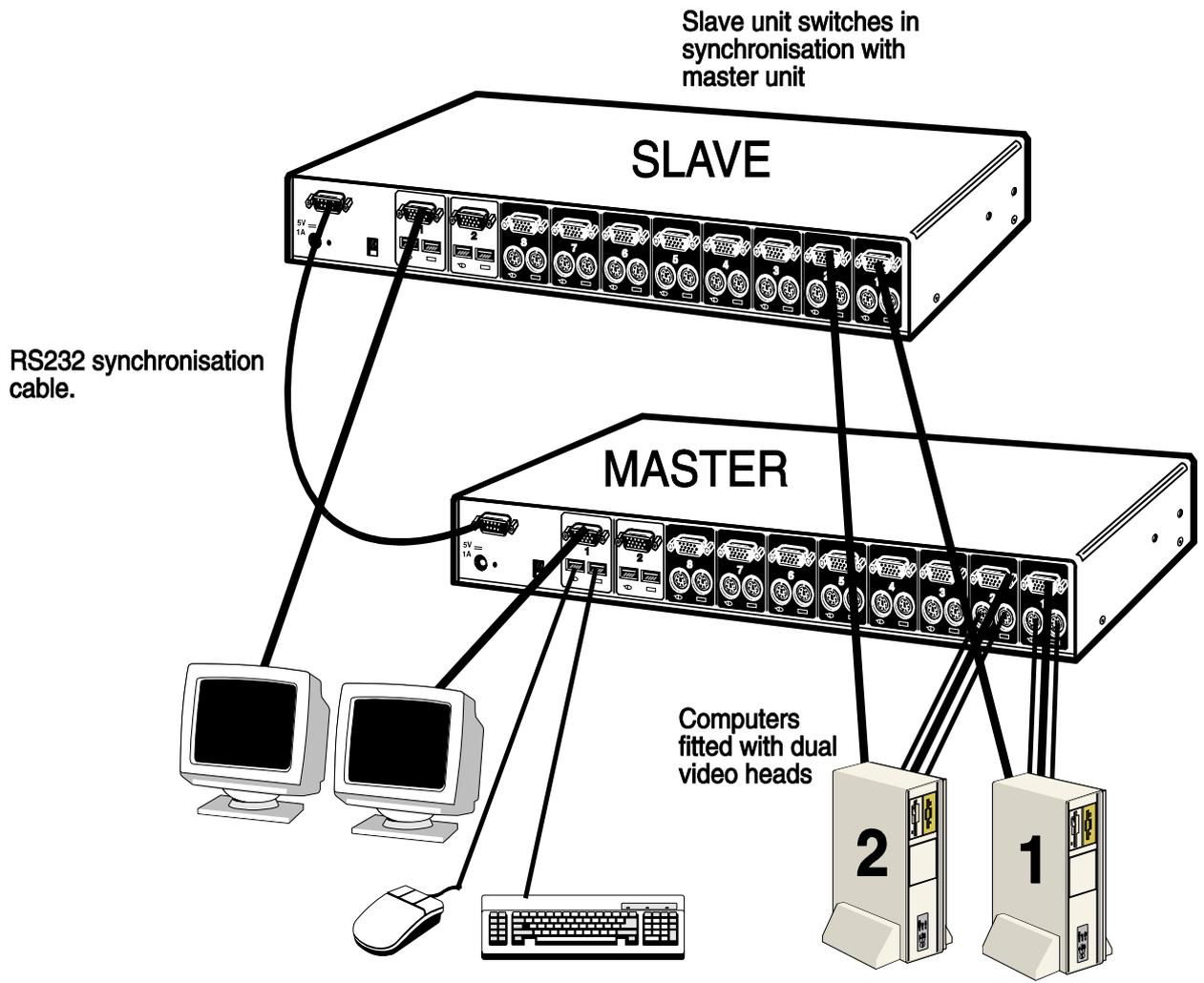
Synchronised LINDY CPU Switches used for a Dual head video switching application

The pinout of the RS232 synchronisation cable is as shown below.

MASTER End

TXD ②──────────③ RXD

9-way D-type
male connector

GND ⑤──────────⑤ GND

SLAVE End

9-way D-type
male connector
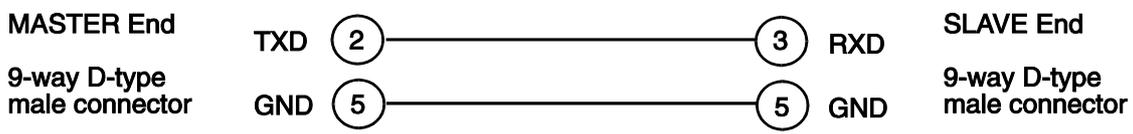
The pinout for a "daisy chain" RS232 cable for more than 2 units is shown below:
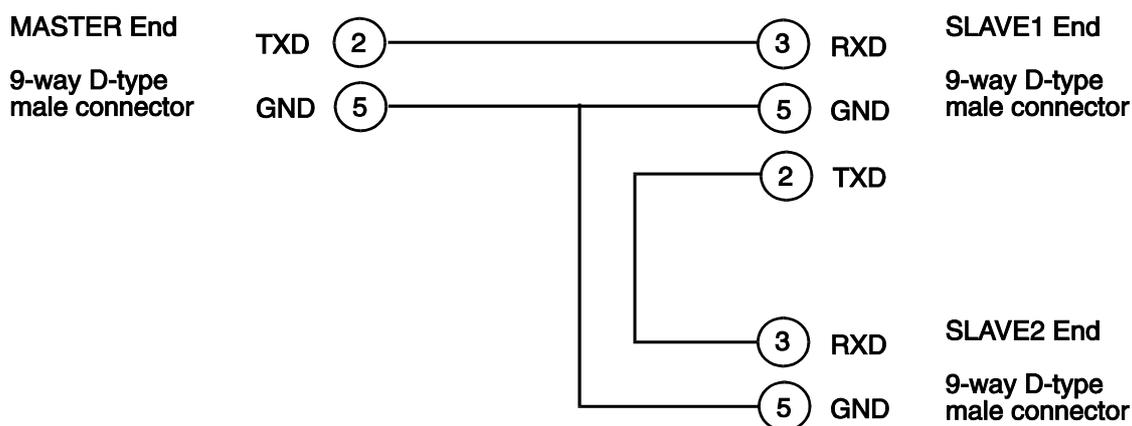
6.2 Logging access activity

By connecting the LINDY CPU Switch's serial port to a computer, a time stamped log of the LINDY CPU Switch's activity can be generated. This is useful for applications where it is necessary to keep track of which users have accessed which computers. A simple data logging program may be downloaded from the LINDY website (LYLOG.EXE). This enables the activity log to be saved to a file or printed to a printer. This logging program uses the Excel-compatible file LYDATA.CSV (that may be downloaded from the LINDY CPU Switch – see section 4.19) to cross reference the port and user information to computer and user names in order to generate an informative activity log.

To make use of the activity logging features:

1. Download the program LYLOG.EXE from the downloads section of the LINDY website (www.lindy.com).
2. Follow the instructions in section 4.19 to create the Excel compatible file LYDATA.CSV that contains a list of user and computer names and port numbers.
3. Copy the LYDATA.CSV file into the same directory as the LYLOG.EXE file.
4. Run the LYLOG file using the following command format:

LYLOG {activity_log_destination} {com_port}

{activity_log_destination} is the file name where the log is to be stored or the word PRINT if the log is to be printed on a printer attached to the computer's parallel port. LPT1

{com_port} is the computer's serial port that is connected to the LINDY CPU Switch. Options are **1** (for COM1) or **2** (for COM2).

For example:

LYLOG datalog.txt 1

would log activity information received on COM1 to the file datalog.txt.

LYLOG PRINT 2

would print activity information received on COM2 to the printer attached to the computer's LPT1 printer port.

These programs will run continuously until the user presses the **SPACE BAR.**

More information
Users who wish to integrate activity data logging with their own PC programs may contact LINDY for a list of RS232 data logging codes and their associated meaning. It is possible to use the activity logging and LINDY CPU Switch synchronisation features together but this requires a specially constructed RS232 cable. Please contact LINDY for further details.

Appendix A. Cable and connector specifications

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IMPORTANT NOTE

The maximum cable lengths supported vary widely between devices and cables. It may be possible to use cables that are longer than those specified below with certain PCs and peripherals but this cannot be guaranteed. If you experience problems try using shorter cables.

</div>

A1. Keyboard, monitor and mouse to LINDY CPU Switch Dual MP

All of the shared devices plug directly into the relevant ports at the rear of the LINDY CPU Switch Dual MP.

Cable specification:
Cables should be no longer than 5 metres.

## A2. LINDY CPU Switch Dual MP to computers 1 to 16

Cables for connection to PCs:
Cables may be extended up to 20 metres using standard extension cables. Video extension cables should be good quality with a coaxial construction and should support the DDC (Display Data Channel) signals (pins 12 and 15 on the 15-way video connector). Please contact your supplier if you have any questions.

Part No.	Description	Length
33711	Cable for PC connection (PS/2 style)	1 metre
33712	Cable for PC connection (PS/2 style)	2 metres
33714	Cable for PC connection (PS/2 style)	5 metres
33716	Cable for PC connection (PS/2 style)	10 metres

Connects to
Lindy CPU
Switch

PC cable

Connects
to computer

Keyboard (6 pin)

Video (15 pin)

Mouse (6 pin)
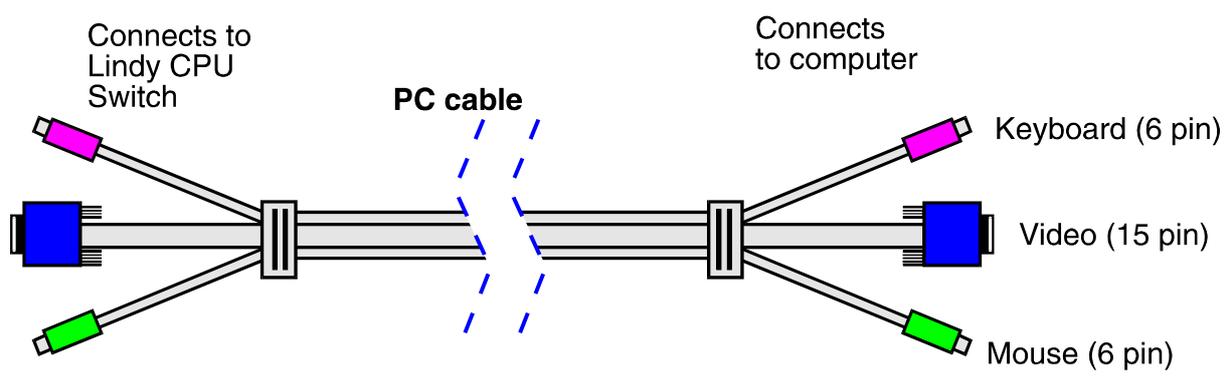
The –AT cable kits include the adapters shown below.

PS/2 to AT
keyboard adapter
(Part No. 70130)

Connects
to computer

PC cable

PS/2 to RS232
mouse adapter
(Part No. 70058)
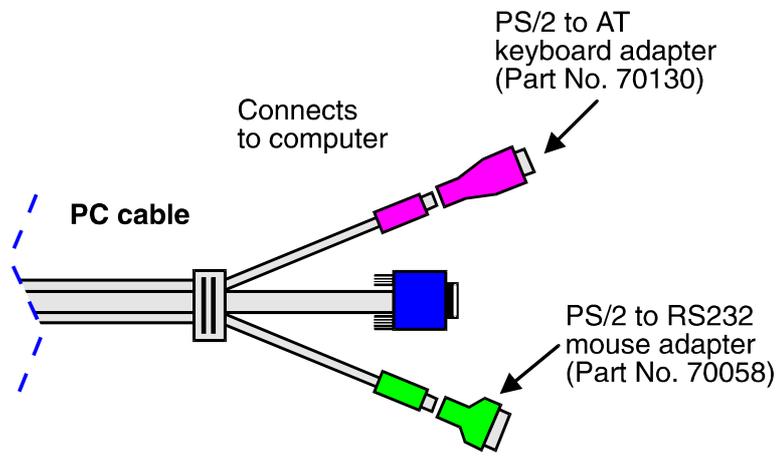
Cables for connection to Sun computers with 8-pin keyboard/mouse connectors:

Cables to Sun computers with 8 pin mini-DIN keyboard/mouse connectors may be up to 20 metres long. If you use an extension cable then this should be added to the Dual MP end of the cable.

Part No.	Description	Length
42870	Cable for Sun (8-pin style)	2 metres

Connects Lindy CPU Switch

SUN cable

Connects to Sun computer

Keyboard and Mouse (8-pin) connector

Video (15 pin)
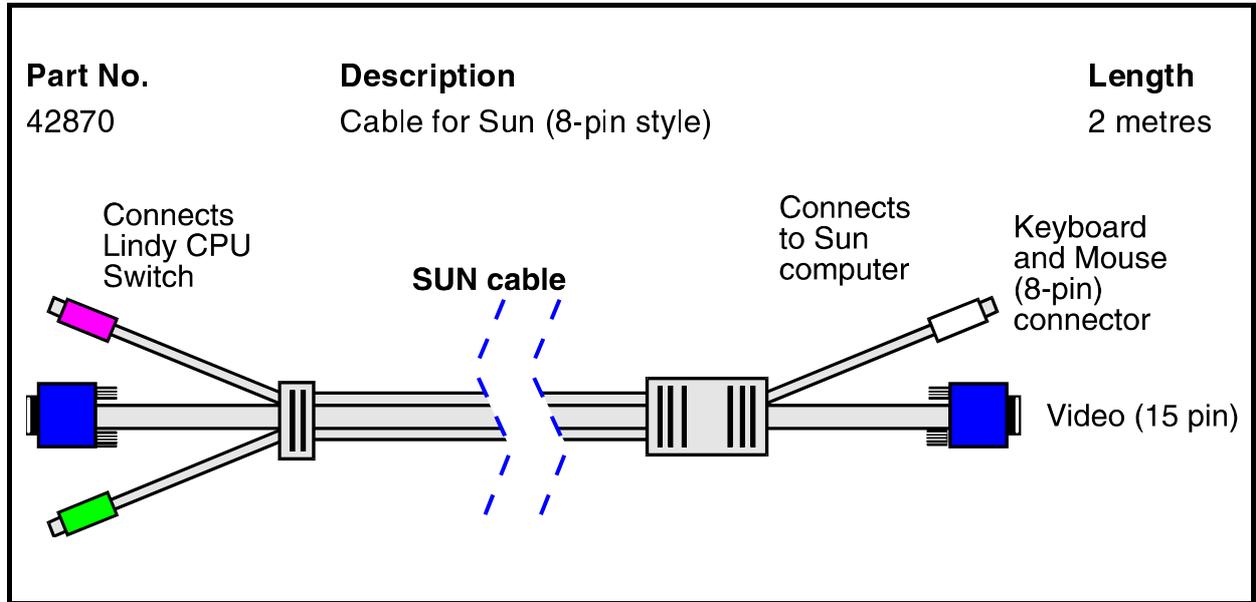
Cables for connection to computers with USB keyboard/mouse connections:

Cables to computers with USB keyboard/mouse connectors may be up to 20 metres long. If you use an extension cable then this should be added to the Dual MP end of the cable as the USB end can only be extended by up to 5 metres.

Part No.   **Description**   **Length**
42867   Cable for USB-enabled computers   2 metres

Connects to Lindy CPU Switch

Connects to computer

USB cable

Keyboard and Mouse USB connector

Video (15 pin)
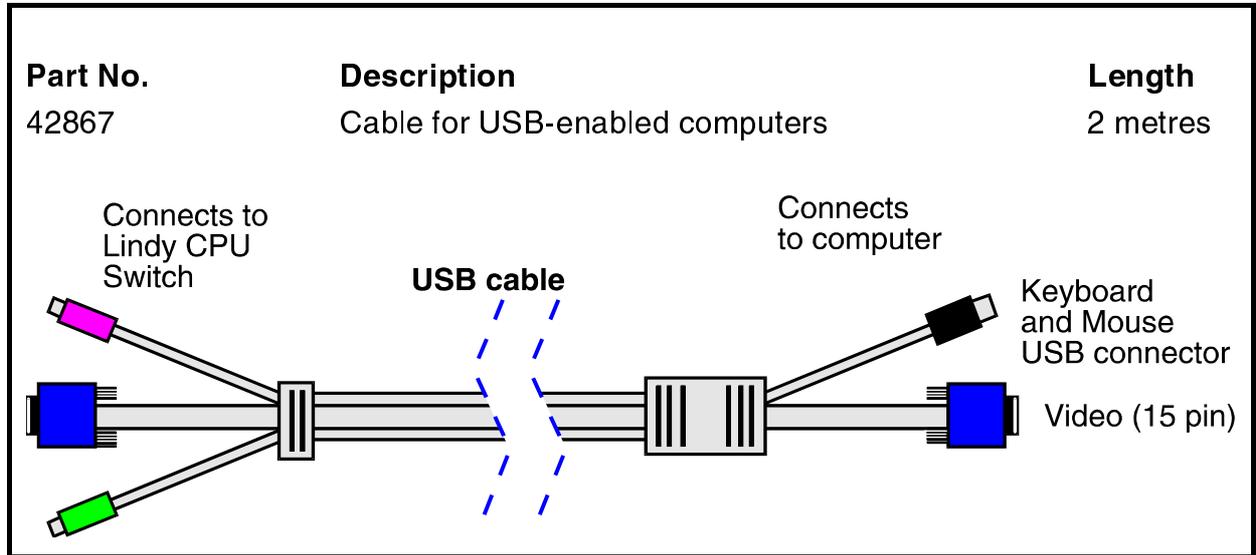
Adapters:

**70058 mouse adapter** - This is required if you wish to connect a computer that has a 9-pin serial mouse connection:

Connects
to computer

PC cable

PS/2 to RS232
mouse adapter
(Part No. 70058)

6 pin mini-DIN female

takes cable from CPU Switch

9 pin D female

plugs into PC serial port

CLK	5		N/C — 1	DCD
DAT	1		2	RXD
TXD	2		5	GND
GND	3		4	DTR
+5V	4		6	DSR
-12V	6		7	RTS
			3	TXD(-12V)
			N/C — 8	CTS
			N/C — 9	RI

Male   Female

5   6   6   5
3   4   4   3
 1   2   2   1
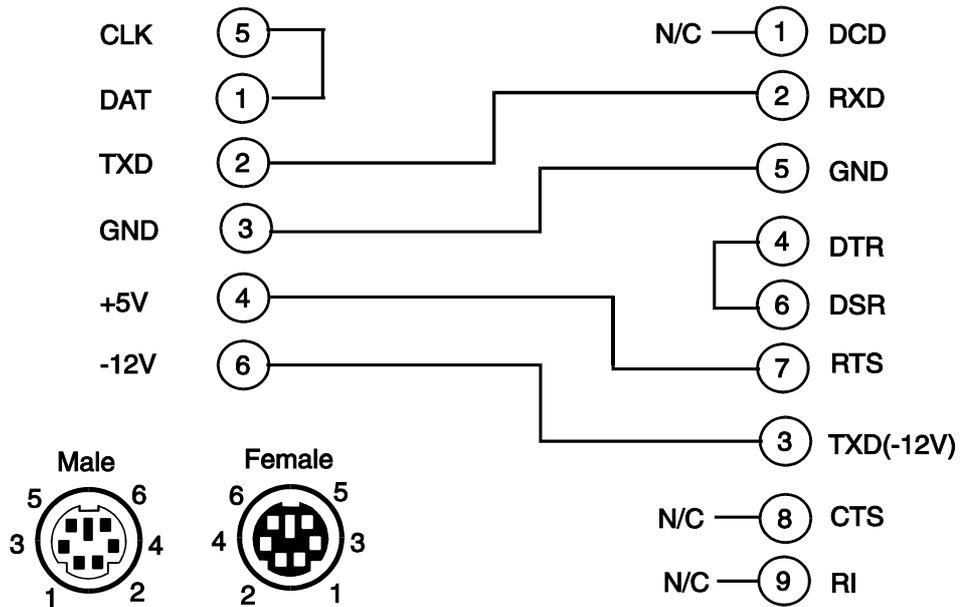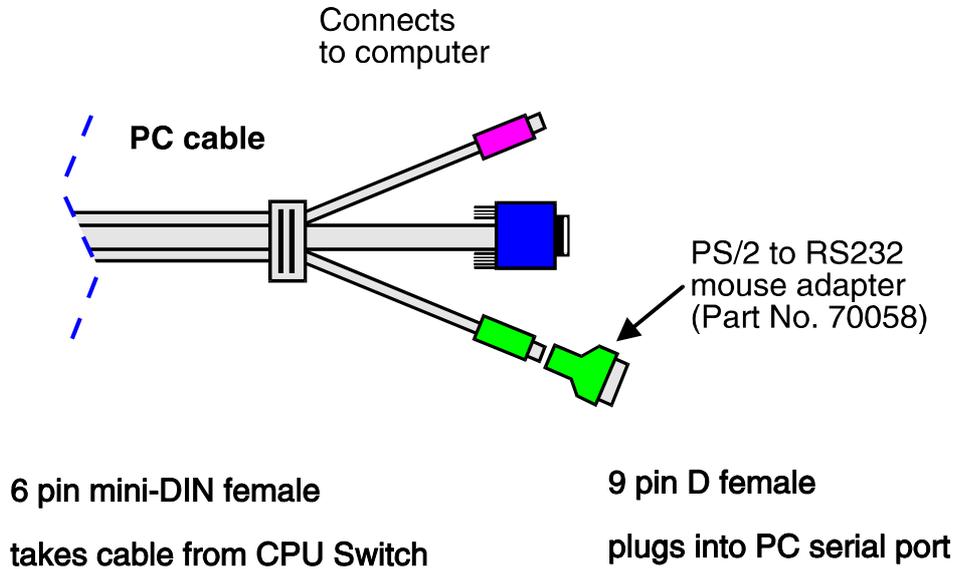
Cables should be no longer than 30 metres.

NOTE - There are several common wiring specifications for 6-pin mini-DIN to 9-pin serial adapters. If you have an adapter that has been supplied with a mouse it may have a completely different internal wiring to that shown above and may not be compatible with the LINDY CPU Switch Dual MP

70130 keyboard adapter - If your PC has a 5-pin DIN AT style keyboard connector you will need a PS/2 to AT keyboard adapter 6-pin mini-DIN female to 5-pin DIN male.

PS/2 to AT
keyboard adapter
(Part No. 70130)

Connects
to computer

PC cable
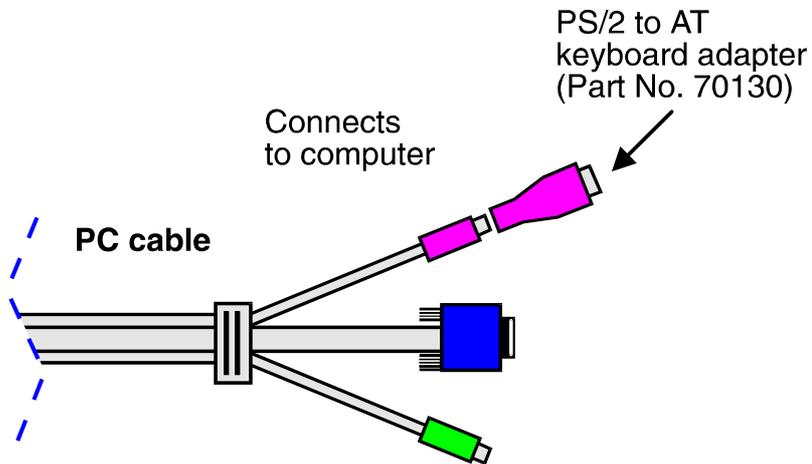
70127 video adapter - If your Sun computer has a 13W3 video connector then you will need to fit a 15-way D-type to 13W3 video adapter onto the end of the Sun cable.

13W3 to 15 pin D-type
video adapter
(Part No. 70127)

Connects
to Sun
computer

SUN cable
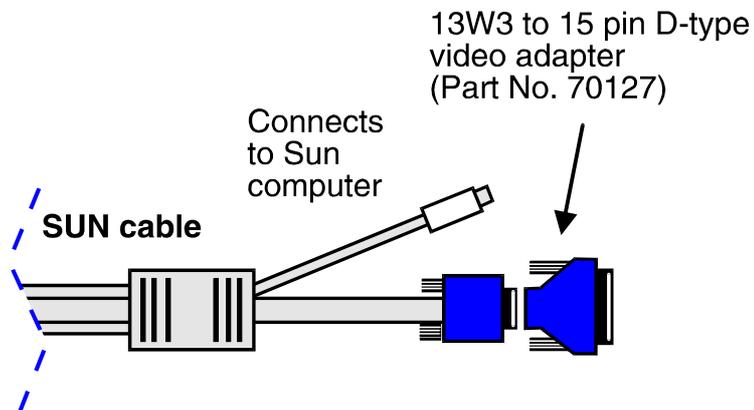
Appendix B.   Problem Solving

Problem:

Poor video quality with smearing fuzziness or ripple.

Action:

Use screened coaxial video cables to connect your devices to the LINDY CPU Switch.

For more help with problems visit the LINDY website at www.lindy.com.

Notes

Notes

LINDY®

COMPUTER CONNECTION TECHNOLOGY

www.lindy.com