PESA Switching Systems

e-Route™ Controller

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Tables

Chapter 1 – Introduction

General

This manual provides instructions for the installation, operation, and maintenance of the PESA e-Route controller.

Safety Warnings

Safety warnings, and other important information, are emphasized in three ways:

WARNING

Warning statements identify conditions or practices that could result in personal injury or loss of life.

CAUTION

Caution statements identify conditions or practices that could result in damage to equipment.

NOTE

Notes add emphasis to information that is important for the correct installation, operation, or maintenance of the equipment.

Product Description

The e-Route controller is a TCP/IP-based controller that allows a routing switcher system to be controlled over a LAN or WAN (including the Internet).

Inside the e-Route controller is a PC-compatible computer running the Linux® operating system. An IEEE 802.3 Ethernet 10BASE-T network interface is provided that is compatible with the Novell® NE2000™ LAN driver. Additional connectors are provided for the following optional, customer-supplied, I/O equipment:

- Monitor
- AT-Style Keyboard

The e-Route controller can be used with all PESA equipment employing the CPU Link interface, including:

- 2400 System Controller
- 3300 System Controller
- 3500 System Controller
- 3500Plus System Controller
- 6600 System Controller
- Bobcat Routing Switcher System
- LNS-8 Routing Switcher System
- Ocelot Routing Switcher System

Specifications

General

Operational Environment

Temperature ..... 0-40°C
Humidity ..... 0-90% Non-Condensing

Physical Characteristics

Height ..... 1.75 in (44 mm) (1 Rack Unit)
Width ..... 19.00 in (483 mm)
Depth ..... 12.25 in (311 mm)
Weight ..... 10.2 lb (4.6 kg)

Power

Input ..... Auto-Ranging: 90-260 VAC, 47-63 Hz
Input Connector ..... IEC 320 Receptacle
Power Consumption 132VA

IEC 320 Line Cords

US
- Part Number 81-9028-0403-0
- Connectors ..... IEC 320-C13 to NEMA 5-15P

UK
- Part Number 81-9028-TBD-0
- Connectors ..... IEC 320-C13 to BS 1363A

Euro
- Part Number 81-9028-0411-0
- Connectors ..... IEC 320-C13 to CEE 7/7 Schuko

Chapter 2 – Installation

Shipping Damage Inspection

Immediately upon receipt, all shipping containers should be inspected for damage caused in transit. If any damage is noted, save all packing material and contact both PESA and the carrier as soon as possible.

Unpacking

Carefully unpack the equipment and compare the parts received against the packing list and Table 1. If any parts appear to be missing, please contact PESA immediately.

Table 1. Equipment List

Part No. Description	Quantity Required
Part No. 81-9065-2224-0 e-Route Controller	1 ea
Part No. 81-9028-0393-0 Null Modem Serial Cable, 10’	1 ea
Part No. 81-9065-2264-0 CD, PESA e-Route Configuration software	1 ea
Part No. 81-9028-0403-0 Line Cord, U.S., IEC 320-C13 to NEMA 5-15P	Note 1
Part No. 81-9028-0411-0 Line Cord, Euro., IEC 320-C13 to CEE 7/7 Schuko	Note 1
Part No. 81-9065-2307-0 CD, PESA Product Manuals	1 ea
Note 1: This item is optional or may be ordered in varying quantities. Please consult your purchase order to verify that you have received the correct quantity.	

NOTE

Because of the many variations in network design, the network cable is not included with e-Route. For more information on this cable, see “Network Connector (LAN)” on page 8.

Installation Location

WARNING

For safety reasons, this equipment must be located near the socket-outlet or power strip so that the AC line cord plugs are easily accessible (Ref. EN60950:1992 §1.7.2).

This equipment is designed to be installed in a standard 19-inch equipment rack located in an environment conforming to the specifications shown in Chapter 1. Each unit should be located as close as possible to its associated equipment to minimize cable runs.

Consideration should be given to the connection of this equipment to the supply circuit and the effect that possible overloading could have on overcurrent protection circuits and supply wiring. Refer to the nameplate ratings when addressing this concern.

Installation in Equipment Rack

This equipment is designed to be installed in a standard 19-inch equipment rack. Sufficient space must be provided behind the equipment racks to allow for control, signal, and power cables. All panel mounting holes should be utilized and mounting hardware tightened securely.

Install the equipment into the rack as follows:

1. Insert the panel assembly into the equipment rack and support the bottom of the panel assembly until all mounting hardware has been installed and properly tightened.
2. Install the bottom two panel mounting screws.
3. Install the top two panel mounting screws.
4. Install any remaining panel mounting screws.
5. Tighten all of the panel mounting screws until they are secure.

Interface Connections

For reasons of personal safety, and to prevent damage to the equipment or cables, the following guidelines should be followed when connecting cables to this equipment.

1. Install the equipment in the rack before connecting cables.
2. All cables should be carefully strain relieved to prevent connector separation.
3. To the extent possible, separate control, signal, and power cables to minimize crosstalk and interference.
4. The liberal use of nylon cable ties to secure cables to the rack is encouraged. This will minimize the amount of force transmitted to the equipment and help route cables away from hazardous areas.
5. Route cables away from walk areas to avoid creating a safety hazard.

Interface connections are made at both the front and rear of this equipment as shown in Figure 1 and Figure 2.

Figure 1. e-Route Controller Front View

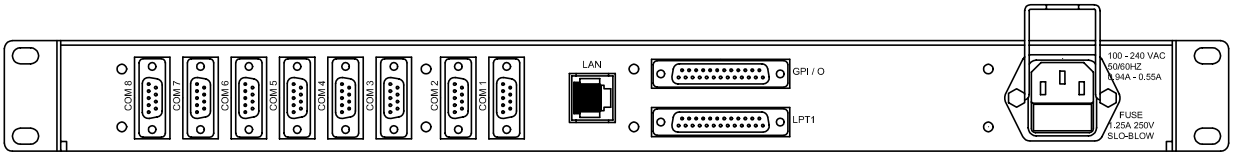


Figure 2. e-Route Controller Rear View

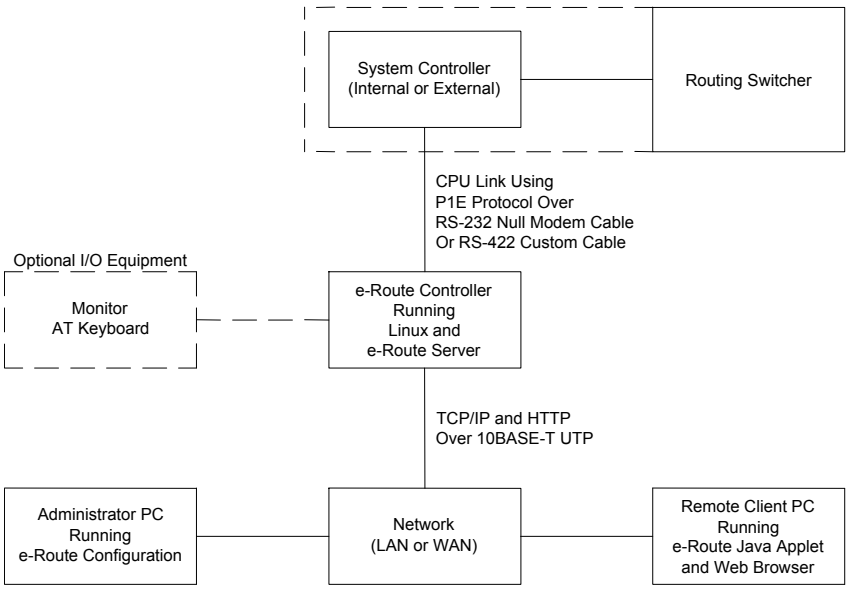


Figure 3. System Block Diagram

Computer Interface Connectors (KEYBOARD, MONITOR, LPT1, COM 2)

The e-Route controller contains a PC-compatible computer and has the following interface connectors for use with standard I/O equipment:

- KEYBOARD (Front Panel) – May be used with a standard AT-style keyboard. With the appropriate adapter, a PS2-style keyboard may also be used.
- MONITOR (Front Panel) – May be used with a standard monitor.
- LPT1 (Rear Panel) – This DB-25 Female connector is reserved for future use.

Network Connector (LAN)

This RJ-45 connector provides an IEEE 802.3 Ethernet 10BASE-T (10 Mbps) network interface that is compatible with the Novell NE2000 LAN driver.

LAN is connected to the network with a customer-supplied, 100 Ω Unshielded Twisted Pair (UTP) patch cable conforming to ANSI/TIA/EIA-568A (Commercial Building Telecommunications Cabling Standard) Category 3 or higher.

NOTE

The Network System Administrator should be consulted prior to connecting any equipment to the network.

For a typical star-topology Ethernet network, LAN will generally be connected to a multiport repeater (sometimes referred to as a hub or concentrator).

Additional information about computer networks is available on the following web pages:

- Novell's Networking Primer (http://www.novell.com/info/primer/primer.html)
- Novell's Glossary of Networking Terms (http://www.novell.com/info/glossary/glossary.html)

CPU Link Connector (COM 1)

NOTE

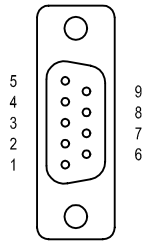
The e-Route controller is configured prior to shipment to operate at 9600 Baud. The serial port on the system controller must also be configured to operate at this speed.

This DB9-Male connector provides either an RS-232 or an RS-422 serial communication interface. See Figure 4 for an orientation view showing contact locations.

Unless specially ordered otherwise, e-Route controllers are shipped with COM 1 operating as an RS-232 interface. For more information on configuring COM 1 as an RS-422 interface, see "Changing COM 1 from RS-232 to RS-422" on page 28.

RS-232 Interface: COM 1 is connected to the CPU Link connector on the equipment to be controlled with a null modem cable (Part No. 81-9028-0393-0). If necessary, a cable up to 50 feet in length may be fabricated in the field as shown in Figure 5.

RS-422 Interface: If used as an RS-422 CPU Link, COM 1 may be connected to the RS-422 connector on the equipment to be controlled with a custom serial cable. If necessary, a cable up to 4000 feet in length may be fabricated in the field as shown in Figure 6.



Contact locations when viewed from rear of chassis.

Figure 4. RS-232 or RS-422 CPU Link Connector (COM 1)

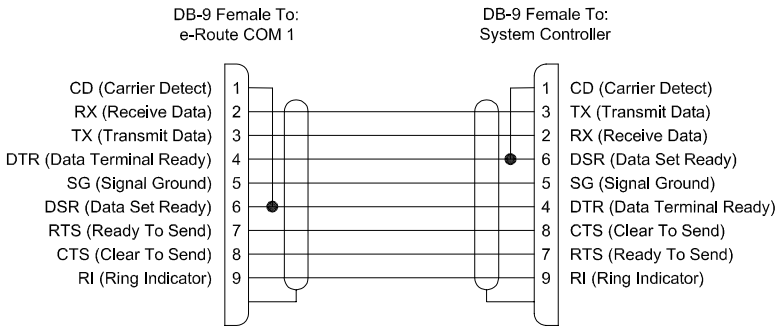


Figure 5. RS-232 CPU Link (Null Modem) Cable

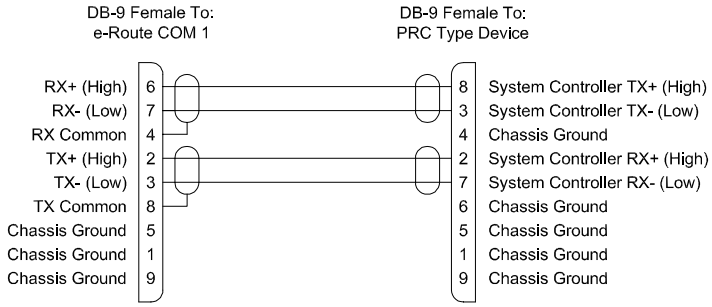


Figure 6. RS-422 CPU Link (Custom) Cable

Power Connector

WARNING

Always use a grounded AC receptacle to avoid a potentially lethal shock hazard in the event of an equipment power line fault.

CAUTION

The e-Route chassis contains a PC-compatible computer. It is recommended that this equipment be protected with an appropriately sized surge suppressor or uninterruptible power supply (UPS).

Plug one end of the supplied power cable into the power connector on the rear of the e-Route chassis. Connect the other end to the AC mains.

When power has been applied to the e-Route chassis, the power on LED on the front panel will be illuminated.

NOTE

The e-Route chassis does not have a power switch. Power is applied and removed by connecting or disconnecting the line cord.

General Purpose Input/Output Connector (GPIO)

This DB25-Female connector is reserved for future use.

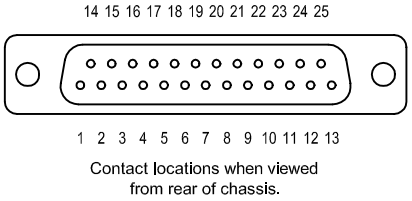


Figure 7. GPIO Connector

Unused Serial Port Connectors (COM 2 through COM 8)

These DB9-Male connectors are reserved for future use.

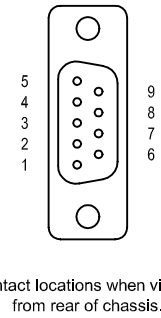


Figure 8. Unused Serial Port Connectors (COM 2 through COM 8)

Switch and Jumper Settings

The jumpers referred to in this manual are located as shown in Figure 9 through Figure 17. There are no DIP switches to be configured.

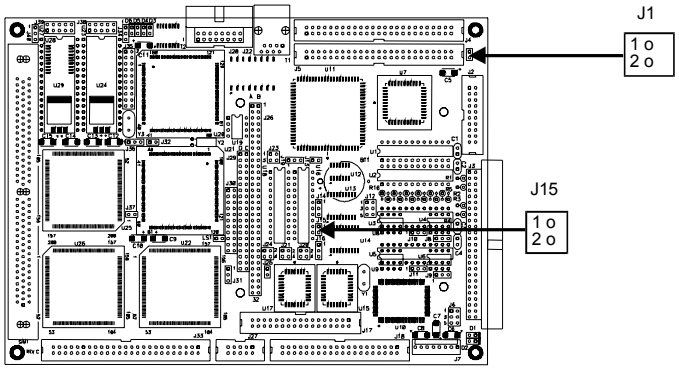


Figure 9. Jumpers J1 and J15

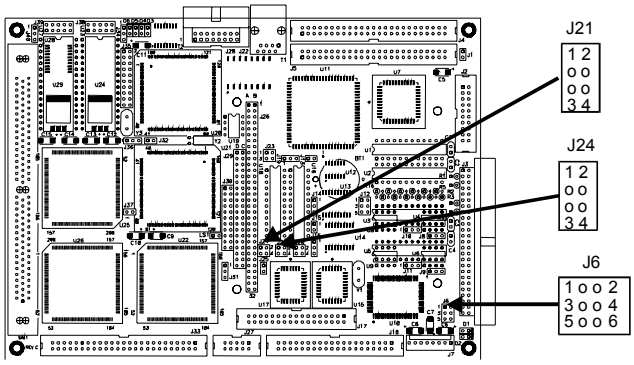


Figure 10. Jumpers J6, J21, and J24

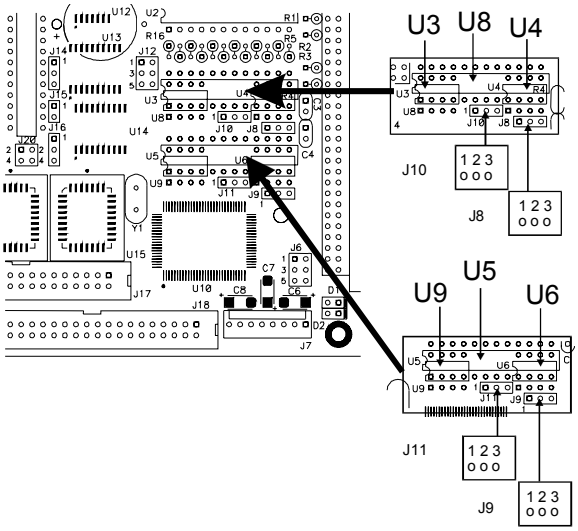


Figure 11. Jumpers J8, J9, J10, and J11

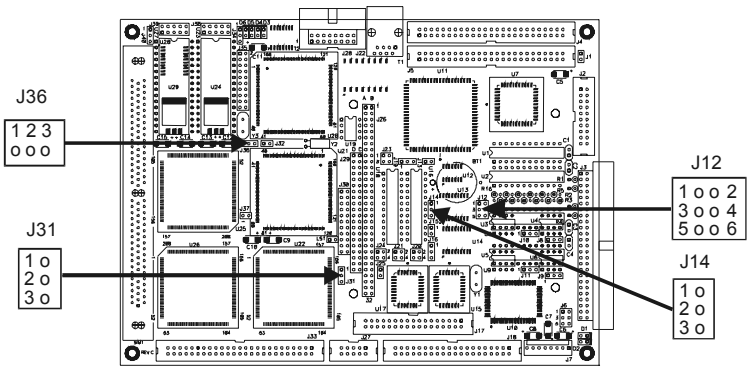


Figure 12. Jumpers J12, J14, J31, and J36

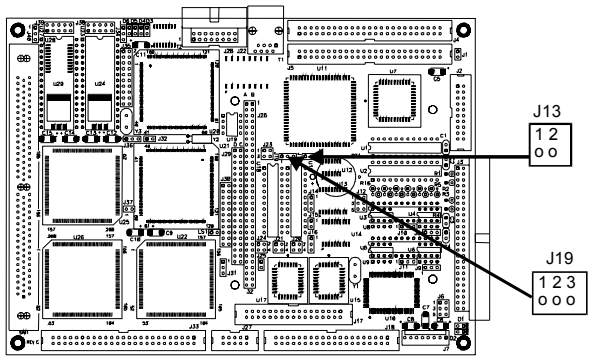


Figure 13. Jumpers J13 and J19

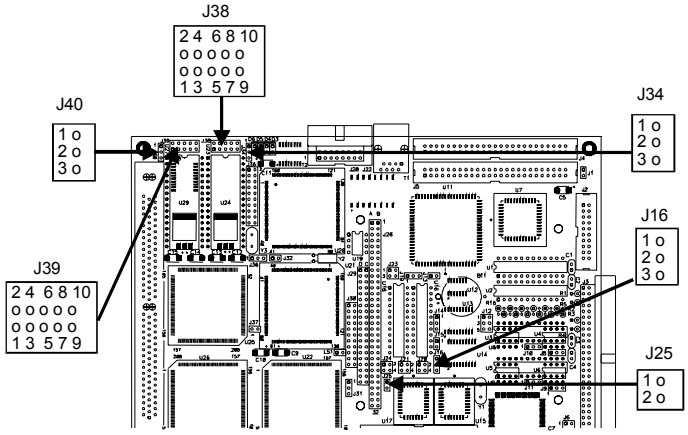


Figure 14. Jumpers J16, J25, J34, J38, J39, and J40

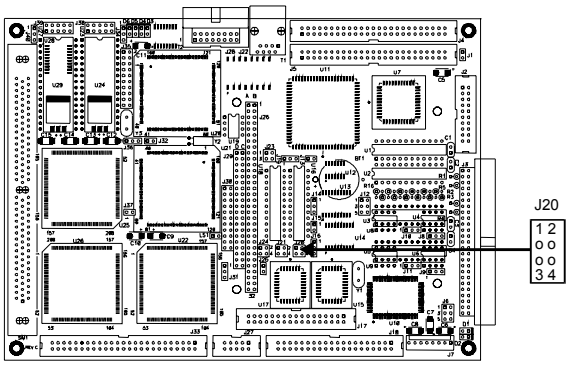


Figure 15. Jumper J20

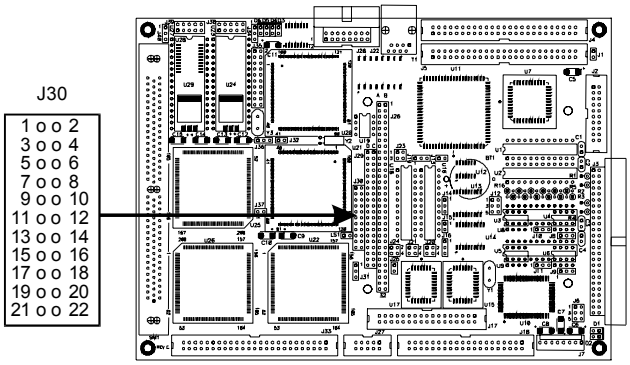


Figure 16. Jumper J30

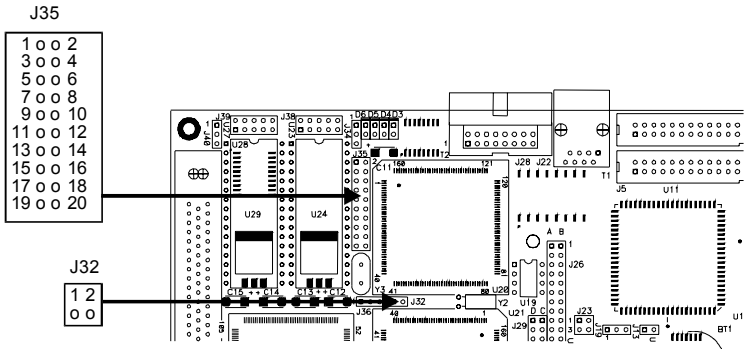


Figure 17. Jumpers J32 and J35

J1 – Parallel I/O VCC Enable/Disable Jumper

J1 is a two-pin jumper block located as shown in Figure 9 on page 13. It is used to enable/disable the presence of +5 VDC on pin 49 of connectors J4 and J5. See Table 2 for jumper settings.

Table 2. Parallel I/O VCC Enable/Disable Jumper J1

Parallel I/O VCC State	J1
J4-49 and J5-49 +5 VDC Enabled	1-2
J4-49 and J5-49 +5 VDC Disabled [DEFAULT]	NONE

See also: J15

J6 – Parallel Port Mode Select Jumper

J6 is a six-pin jumper block located as shown in Figure 10 on page 13. It is used to select one of four parallel port modes. See Table 3 for jumper settings.

Table 3. Parallel Port Mode Select Jumper J6

Parallel Port Mode	J6
SPP [DEFAULT]	3-5, 4-6
EPP	3-5, 2-4
ECP	1-3, 4-6
EPP/ECP	1-3, 2-4

NOTE

The e-Route controller does not currently support the use of a printer.

See also: J21 and J24

J8, J9, J10, J11 – Serial Port Configuration Jumpers

J8, J9, J10, and J11 are three-pin jumper blocks located as shown in Figure 11 on page 13. They are used to configure COM 1 and COM 2 as RS-232, RS-422, RS-485, or SAE J1708 serial ports. See Table 4 for jumper settings.

Unless otherwise ordered, the e-Route controller is shipped with COM 1 and COM 2 configured as RS-232 serial ports. For information on converting COM 1 for use with RS-422, see "Changing COM 1 from RS-232 to RS-422" on page 28.

Table 4. COM 1 and COM 2 Serial Port Configuration Jumpers J8, J9, J10, and J11

COM 1 and COM 2 Serial Port Configuration	J8	J10	J9	J11
COM 1 RS-232 [DEFAULT]	NONE	NONE	N/A	
COM 1 RS-422	NONE	1-2		
COM 1 RS-485	1-2	1-2		
COM 1 SAE J1708	2-3	2-3		
COM 2 RS-232 [DEFAULT]	N/A		NONE	NONE
COM 2 RS-422			NONE	1-2
COM 2 RS-485			1-2	1-2
COM 2 SAE J1708			2-3	2-3

NOTE

PESA equipment does not currently support RS-485 and J1708 as external control interfaces.

J12 – CPU Base Clock Frequency Select Jumper

J12 is a six-pin jumper block located as shown in Figure 12 on page 14. It is used to select one of eight CPU base clock frequencies ranging from 8 MHz to 100 MHz. See Table 5 for jumper settings.

CAUTION

J12 will be set at the factory for the rated frequency of the installed processor. Setting this jumper to any frequency in excess of the rated frequency may result in CPU overheating, malfunction, and possible destruction of the CPU. Failures of CPUs that have been operated above their rated frequencies or temperature are not covered under the warranty.

Table 5. CPU Base Clock Frequency Select Jumper J12

CPU Base Clock Frequency	J12
8 MHz	1-2, 3-4, 5-6
16 MHz	1-2, 3-4
33 MHz [DEFAULT]	1-2, 5-6
40 MHz	1-2
50 MHz	3-4, 5-6
66 MHz	3-4
80 MHz	5-6
100 MHz	NONE

See also: J14, J31, J36

J13 – Battery Enable/Disable Jumper

J13 is a two-pin jumper block located as shown in Figure 13 on page 14. It is used to disconnect the battery from the motherboard. See Table 6 for jumper settings.

An onboard, 200 mAh nominal capacity, lithium coin-cell battery is provided for the CMOS Clock/Calendar and for battery back-up of the Solid State Disk SRAMs. When J13 is open, the battery is totally disconnected and no current will be drawn from it.

Table 6. Battery Enable/Disable Jumper J13

Battery State	J13
Battery Enabled [DEFAULT]	1-2
Battery Disabled	NONE

NOTE

Be sure that any data contained in battery backed SRAM is backed up before removing this jumper. J13 must be jumpered for normal operation whether a battery is installed or not.

To clear the current configuration from CMOS RAM, remove power from the board and remove J13 for at least 1 minute.

CAUTION

Battery life is highly dependent upon duty cycle as there is no current drawn from the battery when +5 VDC is applied to the board. Both storage and operational temperatures play a prominent factor in battery life. High temperatures will shorten battery life significantly.

The battery is soldered in place and is not user serviceable. Any attempt to replace the battery may void the warranty on this equipment. For this reason, if power will be removed from this equipment for an extended period, it is suggested that the J13 jumper be removed to extend battery life.

J14, J31 – PCI Bus Clock Source Select Jumpers

J14 and J31 are three-pin jumper blocks located as shown in Figure 12 on page 14. They are used to select one of two PCI bus clock sources. See Table 7 for jumper settings.

NOTE

If the CPU base clock frequency (J12) is set to a frequency higher than 33 MHz, J14 and J31 must be set to select CPUCLK/2.

Table 7. PCI Bus Clock Source Select Jumpers J14 and J31

PCI Bus Clock Source	J14	J31
CPUCLK [DEFAULT]	2-3	1-2
CPUCLK/2	1-2	2-3

See also: J12

J15 – Parallel I/O Enable/Disable Jumper

J15 is a two-pin jumper block located as shown in Figure 9 on page 13. It is used to enable/disable the parallel I/O features. See Table 2 for jumper settings.

Table 8. Parallel I/O Enable/Disable Jumper J15

Parallel I/O Mode	J15
Parallel I/O Enabled [DEFAULT]	1-2
Parallel I/O Disabled	NONE

See also: J1

J16 – Silicon Disk Device Size Select Jumper

J16 is a three-pin jumper block located as shown in Figure 14 on page 14. It is used to select one of two silicon disk device sizes. See Table 17 for jumper settings.

The silicon disk array consists of two devices, U23 and U27. Jumper J16 controls the device size selection for both devices.

Table 9. Silicon Disk Device Size Select Jumper J16

Silicon Disk Device Size	J16
512K EPROM, SRAM, FLASH device, or DiskOnChip®	2-3
1M EPROM device [DEFAULT]	1-2

NOTE

The silicon disk array feature is not currently supported by the e-Route controller.

See also: J25, J34, J38, J39, J40

J19 – Watchdog Timer Mode Select Jumper

J19 is a three-pin jumper block located as shown in Figure 13 on page 14. It is used to select one of three watchdog timer modes. See Table 10 for jumper settings.

Table 10. Watchdog TimerMode Select Jumper J19

Watchdog Timer Mode	J19
Disabled	NONE
Enabled	2-3
Software Control [DEFAULT]	1-2

J20 – VGA BIOS Expansion ROM Size Select Jumper

J20 is a four-pin jumper block located as shown in Figure 15 on page 15. It is used to select one of two video BIOS expansion ROM sizes. See Table 11 for jumper settings.

Table 11. VGA BIOS Expansion ROM Type Select Jumper J20

VGA BIOS Expansion ROM size	J20
27C010, 27C020, 27C040 [DEFAULT]	3-4
27C080	1-3, 2-4

J21, J24 – Parallel Port DMA Channel Select Jumpers

J21 and J24 are four-pin jumper blocks located as shown in Figure 10 on page 13. They are used to select one of two DMA channels when the parallel port mode has been set to ECP. See Table 12 for jumper settings.

Table 12. Parallel Port DMA Channel Select Jumpers J21 and J24

DMA Channel	J21	J24
DMA Channel 1	1-2	1-2
DMA Channel 3 [DEFAULT]	3-4	3-4

NOTE

The e-Route controller does not currently support the use of a printer.

See also: J6

J23 – COM 3 and COM 4 Enable/Disable Jumper

J23 is a four-pin jumper block. It is used to enable/disable COM 3 and COM 4. See Table 19 for jumper settings.

The interrupts associated with COM 3 and COM 4 are not affected by this jumper. Use jumper J30 to disable them if desired.

Table 13. COM 3 and COM 4 Enable/Disable Jumper J23

Port (Jumper Block Section)	State	J23
COM 3 (Pins 1 and 2)	Enabled [DEFAULT]	1-2
	Disabled	NONE
COM 4 (Pins 3 and 4)	Enabled [DEFAULT]	3-4
	Disabled	NONE

See also: J30

J25 – Silicon Disk Mode Select Jumper

J25 is a two-pin jumper block located as shown in Figure 14 on page 14. It is used to select one of two silicon disk modes. See Table 17 for jumper settings.

The silicon disk array consists of two devices, U23 and U27. Jumper J25 controls the mode selection for both devices.

Table 14. Silicon Disk Mode Select Jumper J25

Silicon Disk Mode	J25
DiskOnChip® Mode	NONE
Solid State Disk Mode [DEFAULT] (EPROM, PEROM (flash) and SRAM)	1-2

NOTE

To ensure compatibility with the Microsoft® Windows® 95 operating system, jumper J25 must be installed between pins 1 and 2.

NOTE

The silicon disk array feature is not currently supported by the e-Route controller.

See also: J16, J34, J38, J39, J40

J30 – Interrupt Enable/Disable Jumper

J30 is a 22-pin jumper block located as shown in Figure 16 on page 15. It is used to enable/disable the interrupts, or (for COM 3 and COM 4 only) select alternate interrupts. See Table 15 for jumper settings.

Table 15. Interrupt Enable/Disable Jumper J30

Device (Jumper Block Section)	State	IRQ	J30
COM 4 Primary IRQ (Pins 1 and 2)	Enabled [DEFAULT]	9	1-2
	Disabled		NONE
ENET IRQ (Pins 3 and 4)	Enabled [DEFAULT]	10	3-4
	Disabled		NONE
COM 3 Alternate IRQ (Pins 5 and 6)	Enabled	11	5-6
	Disabled [DEFAULT]		NONE
COM 4 Alternate IRQ (Pins 7 and 8)	Enabled	12	7-8
	Disabled [DEFAULT]		NONE
WS16C48 IRQ (Pins 9 and 10)	Enabled [DEFAULT]	15	9-10
	Disabled		NONE
IDE IRQ (Pins 11 and 12)	Enabled [DEFAULT]	14	11-12
	Disabled		NONE
LPT IRQ (Pins 13 and 14)	Enabled [DEFAULT]	7	13-14
	Disabled		NONE
FLOPPY IRQ (Pins 15 and 16)	Enabled [DEFAULT]	6	15-16
	Disabled		NONE
COM 3 Primary IRQ (Pins 17 and 18)	Enabled [DEFAULT]	5	17-18
	Disabled		NONE
COM 1 IRQ (Pins 19 and 20)	Enabled [DEFAULT]	4	19-20
	Disabled		NONE
COM 2 IRQ (Pins 21 and 22)	Enabled [DEFAULT]	3	21-22
	Disabled		NONE

See also: J23

J32 – Ethernet Configuration Information Source Select Jumper

J32 is a two-pin jumper block located as shown in Figure 17 on page 15. It is used to select one of two sources for the Ethernet configuration information. See Table 18 for jumper settings.

Table 16. Ethernet Configuration Information Source Select Jumper J32

Ethernet Configuration Information Source	J32
J35 (Jumpered Mode) [DEFAULT]	1-2
EEPROM (Jumperless Mode)	NONE

See also: J35

J34, J40 – SRAM Battery Backup Enable/Disable Jumper

J34 and J40 are three-pin jumper blocks located as shown in Figure 14 on page 14. They are used to enable/disable SRAM battery backup for the silicon disk array. See Table 17 for jumper settings.

The silicon disk array consists of two devices, U23 and U27. Jumper J34 enables/disables SRAM battery backup for U23, J40 does the same for U27.

Table 17. SRAM Battery Backup Enable/Disable Jumpers J34, J40

Battery Backup State	J34	J40
U23 Battery Backup Enabled [DEFAULT]	1-2	N/A
U23 Battery Backup Disabled	2-3	
U27 Battery Backup Enabled [DEFAULT]	N/A	1-2
U27 Battery Backup Disabled		2-3

CAUTION

If battery backup is selected for other than low-power standby SRAMS (such as EPROMs or PROMs) during a power-off condition, the battery will be quickly discharged.

Battery life is highly dependent upon duty cycle as there is no current drawn from the battery when +5 VDC is applied to the board. Both storage and operational temperatures play a prominent factor in battery life. High temperatures will shorten battery life significantly.

The battery is soldered in place and is not user serviceable. Any attempt to replace the battery may void the warranty on this equipment.

NOTE

The silicon disk array feature is not currently supported by the e-Route controller.

See also: J13, J16, J25, J38, J39

J35 – Ethernet Configuration Information Jumper

J35 is a 20-pin jumper block located as shown in Figure 17 on page 15. It is used to provide certain Ethernet configuration information. See Table 18 for jumper settings.

Table 18. Ethernet Configuration Information Jumper J35

Configuration Data Type (Jumper Block Section)	Configuration Data	J35 Pins
Media Type (Pins 1 through 4)	10BASE-T [DEFAULT]	NONE
	Thin Ethernet	3-4
	AUI	1-2
	Special 10BASE-T	1-2, 3-4
Buffer RAM Access Mode (Pins 5 and 6)	I/O Mode (NE2000) [DEFAULT]	NONE
	Shared Memory Mode (WD8013EBT)	5-6
Interrupt Line (Pins 7 through 12)	IRQ 3	NONE
	IRQ 4	11-12
	IRQ 5	9-10
	IRQ 9	9-10, 11-12
	IRQ 10 [DEFAULT]	7-8
	IRQ 11	7-8, 11-12
	IRQ 12	7-8, 9-10
	IRQ 15	7-8, 9-10, 11-12
I/O Port Base Address (Pins 13 through 18)	240H	15-16
	280H	15-16, 17-18
	2C0H	13-14
	300H	NONE
	320H [DEFAULT]	13-14, 17-18
	340H	13-14, 15-16
	360H	13-14, 15-16, 17-18
	None	17-18
Buffer RAM Mode (Pins 19 and 20)	NE2000 Compatible Mode [DEFAULT]	NONE
	Enhanced Mode	19-20

NOTE

If any IRQ other than 10 is selected, the jumper between J30 pins 3 and 4 must be removed.

See also: J35

J36 – Clock Multiplier Select Jumper

J36 is a three-pin jumper block located as shown in Figure 12 on page 14. It is used to select one of two multipliers for 486DX processors and one of two multipliers for 5X86 processors. See Table 19 for jumper settings.

Table 19. Clock Multiplier Select Jumper J36

Clock Multiplier	J36
2X for 486DX4 or 4X for 5X86 [DEFAULT]	2-3
3X (486DX4 or 5X86)	1-2

See also: J12

J38, J39 – Silicon Disk Device Type Select Jumper

J39 and J39 are 10-pin jumper blocks located as shown in Figure 14 on page 14. They are used to select one of five silicon disk device types. See Table 17 for jumper settings.

The silicon disk array consists of two devices, U23 and U27. Jumper J38 controls the device type selection for U23, J39 controls U27.

Table 20. Silicon Disk Device Type Select Jumpers J38, J39

Silicon Disk Device Type	J38	J39
U23 512K x 8 SRAM [DEFAULT]	3-4, 5-6, 7-9, 8-10	N/A
U23 512K x 8 EPROM	3-5, 6-8, 9-10	
U23 512K x 8 PEROM	3-4, 5-7, 6-8, 9-10	
U23 1M x 8 EPROM	2-4, 3-5, 6-8, 9-10	
U23 DiskOnChip® Device	5-7, 6-8	
U27 512K x 8 SRAM [DEFAULT]	N/A	3-4, 5-6, 7-9, 8-10
U27 512K x 8 EPROM		3-5, 6-8, 9-10
U27 512K x 8 PEROM		3-4, 5-7, 6-8, 9-10
U27 1M x 8 EPROM		2-4, 3-5, 6-8, 9-10
U27 DiskOnChip® Device		5-7, 6-8

NOTE

The silicon disk array feature is not currently supported by the e-Route controller.

See also: J16, J25, J34, J40

Options and Upgrades

Changing COM 1 from RS-232 to RS-422

The e-Route controller is normally shipped with COM 1 configured as an RS-232 interface. Under certain circumstances, it may be necessary to reconfigure this connector as an RS-422 interface. For example, if the two RS-232 ports on a 3500Plus system controller are in use, e-Route may be connected to one of the RS-422 ports by converting COM 1 from RS-232 to RS-422. This is accomplished as follows:

1. Remove the e-Route controller cover.
2. Remove integrated circuit U8 (See Figure 11 on page 13). This IC has 24 pins and is marked: Maxim® MAX232.
3. Install ICs U3 and U4. These ICs have 8 pins, are marked 75ALS176, and are available as PESA Part No. 81-9016-0688-0. They are installed in the sockets adjacent to the ones that held U8.
4. Install jumper J10 (located between to U3 and U4) to connect pins 1 and 2. This jumper is available as PESA Part No. 81-9029-0335-0.
5. Reinstall the e-Route controller cover.
6. Fabricate and install the custom cable shown in Figure 6 “RS-422 CPU Link (Custom) Cable” on page 10.

Installing Additional RAM

The e-Route controller utilizes standard 72-pin SIMMs. These should have a minimum speed of 70nS, and X32 architecture is preferred as there is no support for the parity bits provided by X36 bit modules. A single SIMM socket is provided which can support DRAM sizes from 1MB to 32MB.

The e-Route controller is shipped with a 32MB SIMM installed in the SIMM socket. No further expansion is possible.

Silicon Disk Array Installation

The silicon disk array feature is not currently supported by the e-Route controller. Do not attempt to install any devices into U23 or U27.

Chapter 3 – Operation

e-Route Software Installation

The e-Route controller has four main software components:

- The operating system (Linux) is located on the e-Route controller.
- e-Route Server is located on the e-Route controller.
- e-Route Configuration is located on one or more Administrator PCs.
- The e-Route Java applet is served from the e-Route controller, and executed by the web browser on one or more Remote Client PCs.

NOTE

The PESA Internet Remote Control (PIRC) communications protocol is used between the e-Route controller, and the Remote Client executing the e-Route Java applet. This protocol is described in document number 81-9062-0448-0.

The communications protocol used between the e-Route controller and the system controller is PESA CPU Link No. 1 with Extensions (P1E). This protocol is described in document number 81-9062-0408-0.

e-Route Operating System Installation

The e-Route operating system (Linux) was installed on the e-Route controller prior to shipment.

e-Route Server Installation

e-Route Server was installed on the e-Route controller prior to shipment.

e-Route Configuration Installation

One or more computers attached to the network may be designated as Administrator PCs. e-Route Configuration is installed on these computers from the included CD as follows:

- Insert the CD in a CD-ROM drive on the Administrator PC, and follow the instructions displayed.

e-Route Java Applet Installation

The e-Route Java applet was installed on the e-Route controller prior to shipment.

e-Route Software Setup

CAUTION

Always remove power from the e-Route controller before connecting or disconnecting the monitor and keyboard.

NOTE

Under certain rare circumstances, the use of multiple e-Route controllers on the same network may require different machine names for each controller. Please contact PESA Customer Service for additional information on this subject.

NOTE

All commands are case sensitive and must be entered exactly as shown.

NOTE

Until the e-Route setup script has been successfully completed, it will be executed automatically after each login.

Thereafter, it will only be executed when the following Linux command is issued while logged into the root account:

./eRoute_setup

e-Route Operating System Setup

NOTE

The e-Route controller assumes that the user accesses it through direct TCP/IP connections. Access via port 80 for HTTP communications, as well as through ports 4000 to 4100 for direct e-Route communications, must be ensured for those users accessing e-Route through a firewall or proxy server. e-Route expects bi-directional access through these sockets. The integrity of the connection must be supported by the firewall or proxy.

Prior to setting up the e-Route operating system (Linux), certain information must be obtained from your Network Administrator:

- Network Administrator's email address: _____ (Optional)
- e-Route Server Name (DNS Name): _____
- e-Route Machine Name: **eroute**
- The following information will only be needed if the e-Route controller will use a static IP address instead of one assigned by a DHCP server:
  - Static IP address: _____._____._____._____
  - Netmask (Subnet Mask): _____._____._____._____
  - Default Gateway IP address: _____._____._____._____ (Optional)
  - Primary Nameserver IP address: _____._____._____._____ (Optional)

NOTE

The e-Route controller signals certain conditions by beeping:

A series of four beeps emitted after eroutesrvd is executed indicates a lack of data on the serial port. This is usually an indication that a system controller has not been connected to the e-Route controller.

A series of twenty beeps indicates that the e-Route configuration files are not present. These files will be created when e-Route Configuration is used to notify the e-Route controller of the system controller type (see "Notify e-Route Controller of System Controller Type" on page 48 for more information).

e-Route OS Setup using an IP Address Assigned by a DHCP Server

Setup the e-Route controller operating system for use with a DHCP server as follows:

1. Remove power from the e-Route controller.
2. Attach an AT-style keyboard and a VGA monitor to the front of the e-Route controller.
3. Apply power to the e-Route controller.
4. After several minutes, the following prompt will be displayed:

   eroute login:

5. Type the following and press the Enter key:

   root

6. The following prompt will be displayed:

   Password:

7. Type the following and press the Enter key:

   eroute

8. The following prompt will be displayed:

   Welcome to the eRoute setup script. This script prepares the eRoute system for use. It requires you to enter information about the eRoute and the network environment in which it will be running. If the script is not run to completion, the eRoute will not operate.
   You may need to ask your network administrator for some information concerning the network and how the eRoute will fit into it.

   The Linux netconfig script is about to be run. You will need the following information: the static IP address of the eRoute, if you are not going to use DHCP IP address assignment. You will also need the IP address of the network gateway, and the IP address of the network's DNS server.
   Press return to run netconfig:

> **NOTE**
>
> To return to the Linux prompt without running netconfig, press Ctrl+C.

9. Press the Enter key to start netconfig.

10. The following prompt will be displayed:

Would you like to set up networking?

Yes No

11. Press the Tab key until "Yes" is highlighted, then press the Enter key

12. The following prompt will be displayed:

Please enter the IP configuration for this machine. Each item should be entered as an IP address in dotted-decimal notation (for example, 1.2.3.4).

[Use dynamic IP configuration (BOOTP/DHCP)

IP Address: _____
Netmask: _____
Default gateway (IP): _____
Primary nameserver: _____

OK Back

13. Press the Tab key until the "Use dynamic IP configuration" check box is highlighted.

14. Press the Space Bar to select the "Use dynamic IP configuration" option. An asterisk (*) will appear in the check box.

15. Press the Tab key until "OK" is highlighted, then press the Enter key.

16. The following prompt will be displayed:

Checking network status
ip addr:xxx.xxx.xxx.xxx
ln: /etc/rc.d/rc3.d/S95eroutesvrd: File exists
ln: /etc/rc.d/rc3.d/S95rebootd: File exists

Enter the name of the eRoute server
This name must be a recognized DNS name.
If you do not have a name, enter the static IP address.
If you do not understand, consult your system administrator.
Enter server name:

NOTE

The IP address that was assigned by the DHCP server is shown on the second line of the above prompt. Record this IP address now for future use:

_____._____._____._____

17. Enter the e-Route Server Name (DNS Name) provided by your Network Administrator (see "e-Route Operating System Setup" on page 30) and press the Enter key.

18. The following prompt will be displayed:

    You may now enter the email address of the system administrator responsible for this eRoute system. This can be helpful to users reporting problems with the eRoute to your administrator. If you do not wish to enter the email address, then enter nothing and press return.
    Enter System Administrator email address:

19. Enter the email address provided by your Network Administrator (see "e-Route Operating System Setup" on page 30) and press the Enter key.

20. Setup is now complete and the following Linux prompt will be displayed:

    [root@eroute /root]#

21. To remove the keyboard and monitor, type the following and press the Enter key:

    halt

22. After about one minute the following prompt will be displayed:

    Power down.

23. Remove power from the e-Route controller.

24. Disconnect the keyboard and monitor.

25. Apply power to the e-Route controller.

26. After approximately 2.5 minutes, four beeps will signify that the e-Route controller is operating, and e-Route Server is running.

e-Route OS Setup using a Static IP Address

Setup the e-Route controller operating system for use with a static IP address as follows:

1. Remove power from the e-Route controller.
2. Attach an AT-style keyboard and a VGA monitor to the front of the e-Route controller.
3. Apply power to the e-Route controller.
4. After several minutes, the following prompt will be displayed:

   eroute login:

5. Type the following and press the Enter key:

   root

6. The following prompt will be displayed:

   Password:

7. Type the following and press the Enter key:

   eroute

8. The following prompt will be displayed:

   Welcome to the eRoute setup script. This script prepares the eRoute system for use. It requires you to enter information about the eRoute and the network environment in which it will be running. If the script is not run to completion, the eRoute will not operate.
   You may need to ask your network administrator for some information concerning the network and how the eRoute will fit into it.

   The Linux netconfig script is about to be run. You will need the following information: the static IP address of the eRoute, if you are not going to use DHCP IP address assignment. You will also need the IP address of the network gateway, and the IP address of the network's DNS server.
   Press return to run netconfig:

> **NOTE**
>
> To return to the Linux prompt without running netconfig, press Ctrl+C.

9. Press the Enter key to start netconfig.

10. The following prompt will be displayed:

    Would you like to set up networking?

    Yes No

11. Press the Tab key until "Yes" is highlighted, then press the Enter key

12. The following prompt will be displayed:

    Please enter the IP configuration for this machine. Each item should be entered as an IP address in dotted-decimal notation (for example, 1.2.3.4).

    [Use dynamic IP configuration (BOOTP/DHCP)

    IP Address: _____
    Netmask: _____
    Default gateway (IP): _____
    Primary nameserver: _____

    OK Back

13. Press the Tab key until the cursor is in the "IP address" field. Enter the static IP address provided by your Network Administrator (see "e-Route Operating System Setup" on page 30) and press the Enter key.

14. Press the Tab key until the cursor is in the "Netmask" field. A default value will be entered in this field. If necessary, change this to the Netmask provided by your Network Administrator (see "e-Route Operating System Setup" on page 30) and press the Enter key.

15. Press the Tab key until the cursor is in the "Default gateway (IP)" field. A default value will be entered in this field. Change this to the default gateway IP address provided by your Network Administrator (see "e-Route Operating System Setup" on page 30). If your Network Administrator did not provide a default gateway IP address, use the Backspace key to delete the entry in this field. Press the Enter key.

16. Press the Tab key until the cursor is in the "Primary nameserver" field. A default value will be entered in this field. Change this to the primary nameserver IP address provided by your Network Administrator (see "e-Route Operating System Setup" on page 30). If your Network Administrator did not provide a primary nameserver IP address, use the Backspace key to delete the entry in this field. Press the Enter key.

17. Press the Tab key until "OK" is highlighted, then press the Enter key.

18. The following prompt will be displayed:

    Enter the name of the eRoute server
    This name must be a recognized DNS name.
    If you do not have a name, enter the static IP address.
    If you do not understand, consult your system administrator.
    Enter server name:

19. Enter the e-Route Server Name (DNS Name) provided by your Network Administrator (see "e-Route Operating System Setup" on page 30) and press the Enter key.

20. The following prompt will be displayed:

    You may now enter the email address of the system administrator responsible for this eRoute system. This can be helpful to users reporting problems with the eRoute to your administrator. If you do not wish to enter the email address, then enter nothing and press return.
    Enter System Administrator email address:

21. Enter the email address provided by your Network Administrator (see "e-Route Operating System Setup" on page 30) and press the Enter key.

22. Setup is now complete and the following Linux prompt will be displayed:

    [root@eroute /root]#

23. To remove the keyboard and monitor, type the following and press the Enter key:

    halt

24. After about one minute the following prompt will be displayed:

    Power down.

25. Remove power from the e-Route controller.

26. Disconnect the keyboard and monitor.

27. Apply power to the e-Route controller.

28. After approximately 2.5 minutes, four beeps will signify that the e-Route controller is operating, and e-Route Server is running.

Testing the e-Route Controller Network Connection

To ensure that the e-Route controller has been correctly connected to the network, test the connection as follows:

> **NOTE**
>
> To fully test the network connection, ping the e-Route controller from another computer on the network. Do not use the e-Route controller itself to perform this test.
>
> The procedure below is for use with a PC running a Microsoft Windows operating system. Consult the network administrator for the procedure to use with other operating systems.

1. Type the following (use the DHCP IP address recorded on page 33, or the static IP address recorded on page 31) and press the Enter key.

   ping xxx.xxx.xxx.xxx

7. If the network connection is working properly, the following prompt will be displayed:

   Pinging xxx.xxx.xxx.xxx with 32 bytes of data:

   Reply from xxx.xxx.xxx.xxx: bytes=32 time<10ns TTL=128
   Reply from xxx.xxx.xxx.xxx: bytes=32 time<10ns TTL=128
   Reply from xxx.xxx.xxx.xxx: bytes=32 time<10ns TTL=128
   Reply from xxx.xxx.xxx.xxx: bytes=32 time<10ns TTL=128

   C:\>

2. If the e-Route controller is not responding, a time out will occur as shown below:

   Pinging xxx.xxx.xxx.xxx with 32 bytes of data:

   Request timed out.
   Request timed out.
   Request timed out.
   Request timed out.

   C:\>

Expiration of DHCP Server Assigned IP Addresses

Some networks may be configured so that IP addresses assigned by a DHCP server may expire after a period of inactivity. A new IP address will be assigned when the e-Route controller becomes active again. The new IP address assigned by the DHCP server may be determined as follows:

1. Remove power from the e-Route controller.
2. Attach an AT-style keyboard and a VGA monitor to the front of the e-Route controller.
3. Apply power to the e-Route controller.
4. After several minutes, the following prompt will be displayed:

   eroute login:

5. Type the following and press the Enter key:

   root

6. The following prompt will be displayed:

   Password:

7. Type the following and press the Enter key:

   eroute

8. The following prompt will be displayed:

   [root@eroute /root]#

9. Type the following and press the Enter key:

   ifconfig eth0

10. The second line of the resulting will begin with the IP address:

    inet addr: xxx.xxx.xxx.xxx

11. To remove the keyboard and monitor, type the following and press the Enter key:

    halt

12. After about one minute the following prompt will be displayed:

    Power down.

13. Remove power from the e-Route controller.
14. Disconnect the keyboard and monitor.
15. Apply power to the e-Route controller.
16. After approximately 2.5 minutes, four beeps will signify that the e-Route controller is operating, and e-Route Server is running.

e-Route Server Setup

Setting up an e-Route to work with 3500Plus V3.1 or later

The e-Route (V2.1 and later) is able to pull its configuration directly from the 3500Plus controller. However, to be able to do this, there are some settings that must be made on the e-Route to indicate that it is indeed talking to a V3.1 or later 3500Plus.

To adjust the settings, the user must log in as the root user on the e-Route using the main console. Once in the eRoute, the user needs to edit the following file:

/eRoute/device.dat

The first line of the file indicates the controller to which the e-Route is communicating. For 3500Plus operation, this setting should be:

3300/3500/3500Plus

The eRoute comes equipped with the emacs editor. To make these changes using emacs, do the following.

cd /eRoute

emacs device.dat

Edit the first line of the file to be **3300/3500/3500Plus**. If there is any other text in the file other than what was just typed, remove it using the Delete Key.

After making the edit type: **CTL+X** and then **CTL+S** to save the file

To exit the editor, type **CTL+X** and then **CTL+C**.

For the change to take place, you must now restart the e-Route. This can be done by typing:

/root/stop

/root/start

Changing e-Route Serial Port Parameters

If for some reason you need to change the serial port parameters used by e-Route, you need to edit the file:

/eRoute/eRoute.cfg

This file details information on the serial port parameters and where to find information pertaining to the e-Route's configuration.

The serial section is titles "CPULINK Communications" and is set as follows:

```
[CPULINK Communications]
SSpeed="9600"
SPort="0"
SParity="n"
SLength="8"
Sstop="1"
FlowCtrl="0"
```

The eRoute comes equipped with the emacs editor. To make these changes using emacs, do the following.

cd /eRoute

emacs eRoute.cfg

To change the baud rate to 38400 baud from the default of 9600, change the following:

SSpeed=”38400”

To change the serial port used from COM1 (default) to COM2, change the following:

SPort=”1”

Note that the serial port is 0 based i.e. SPort=0 is COM1, SPort=2 is COM2, etc.

For the change to take place, you must now restart the e-Route. This can be done by typing:

/root/stop

/root/start

e-Route Configuration Setup

e-Route Configuration requires no user setup.

e-Route Java Applet Setup

The e-Route Java applet requires no user setup.

e-Route Software Operation

e-Route Operating System Operation

Once the operating system (Linux) has been setup, it will be running anytime power is applied to the e-Route controller. No additional user input is required.

e-Route Server Operation

Once e-Route Server is installed and setup, it will run automatically whenever power is applied to the e-Route controller. No additional user input is required.

NOTE

Because e-Route Server is a Daemon, the e-Route controller will be fully functional whether a user has logged on or not.

NOTE

Approximately 2.5 minutes after power is applied, four beeps will signify that the e-Route controller is operating, and that e-Route Server is running.

e-Route Configuration Operation

NOTE

3500Plus (v3.1 or later): Configurations for these system controllers should be managed with Win3500Plus, not e-Route Configuration.

3300, 3500 and 3500Plus (v3.0 or earlier): These system controllers do not support Remote Clients. Because of this, e-Route Configuration must be used to manage remote client information. However, all source, destination, and level information sent to the e-Route controller will be ignored. Source, destination, and level information for these system controllers must be managed by using the appropriate control system software (e.g. Win3300, Win3500, or Win3500Plus).

Ocelot, Bobcat, 2400 and 6600: These system controllers do not utilize a configuration such as the one used by the 3500Plus. Because of this, e-Route Configuration must be used to manage remote client information. In addition, the source numbers, destination numbers, and level numbers used by e-Route Configuration must correspond to the same numbers used by the system controller.

e-Route Configuration is used to create and modify switching system configurations, and to transfer these configurations between the Administrator PC and the e-Route controller. When first launched, it will appear as shown in Figure 18.

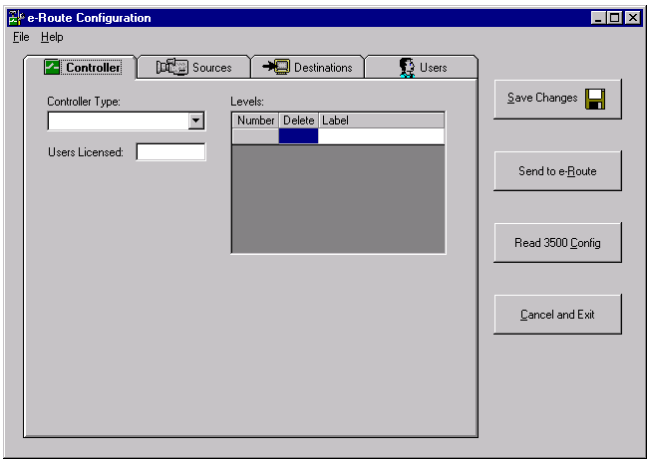


Figure 18. e-Route Configuration Main Window

Menu Bar

The menu bar presents the following options:

File Menu

- New configuration – Creates a new configuration file.
- Open configuration file – Opens an existing configuration file.
- Read 3500 Configuration – Imports an existing configuration file created for use with a 3300, 3500 or 3500Plus system controller (*.dat or *.txt).
- Save changes – Saves the configuration being edited. If a file name has not been assigned to the current configuration, one will be solicited.
- Save changes as – Allows the current configuration to be saved with a different file name, or saved to a different location.
- Send to e-Route – Uploads the current configuration from the Administrator PC to the e-Route controller.
- Receive from e-Route – Downloads the configuration from an e-Route controller to the Administrator PC.
- Exit – Exits the program. If any changes have been made during the current session, an opportunity will be given to save them.

Help Menu

- Send License Key – This is used to input a new license key in order to authorize additional remote clients. Each e-Route controller is initially supplied with ten licenses. If more are needed, please contact PESA Customer Service.
- About – Gives the e-Route Configuration version number, and pertinent system information.

Shortcut Buttons

These buttons provide shortcuts to the most frequently used menu options.

- Save Changes – Saves the configuration being edited. If a file name has not been assigned to the current configuration, one will be solicited.
- Send to e-Route – Uploads the current configuration, along with any changes that have been made, to the e-Route controller.
- Read 3500 Config – Imports an existing configuration file created for use with a 3300, 3500 or 3500Plus system controller (*.dat or *.txt).
- Cancel and Exit – Exits the program. If any changes have been made during the current session, an opportunity will be given to save them.

Controller Tab

See Figure 19 for the Controller Tab window.

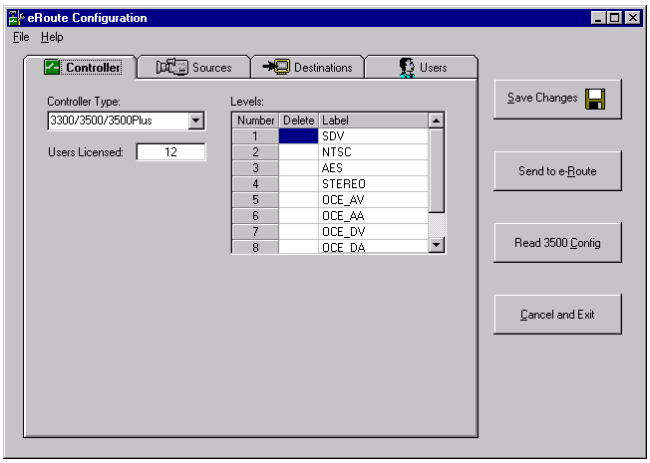


Figure 19. e-Route Configuration Controller Tab

Controller Type

The Controller Type can be set to one of five classes:

- 3300/3500/3500Plus
- Ocelot
- Bobcat
- 2400
- 6600

Most PESA equipment compatible with the e-Route controller may be selected from the drop box. However, other equipment may be specified by typing an entry directly in the data field if necessary.

Users Licensed

After logging in to an e-Route controller, the number of remote clients licensed to simultaneously access that unit will be reported here.

Each e-Route controller is initially supplied with ten licenses. If more are needed, please contact PESA Customer Service.

Levels

The switching system levels are specified here.

Sources Tab

See Figure 20 for the Sources Tab window. This tab is used to manage sources.

NOTE

3500Plus (v3.1 or later): Configurations for these system controllers should be managed with Win3500Plus, not e-Route Configuration.

3300, 3500 and 3500Plus (v3.0 or earlier): These system controllers do not support Remote Clients. Because of this, e-Route Configuration must be used to manage remote client information. However, all source, destination, and level information sent to the e-Route controller will be ignored. Source, destination, and level information for these system controllers must be managed by using the appropriate control system software (e.g. Win3300, Win3500, or Win3500Plus).

Ocelot, Bobcat, 2400 and 6600: These system controllers do not utilize a configuration such as the one used by the 3500Plus. Because of this, e-Route Configuration must be used to manage remote client information. In addition, the source numbers, destination numbers, and level numbers used by e-Route Configuration must correspond to the same numbers used by the system controller.

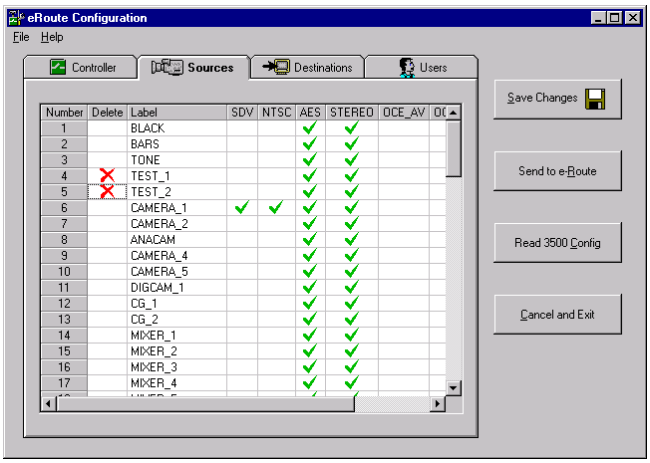


Figure 20. e-Route Configuration Sources Tab

Destinations Tab

See Figure 21 for the Destinations Tab window. This tab is used to manage destinations.

NOTE

3500Plus (v3.1 or later): Configurations for these system controllers should be managed with Win3500Plus, not e-Route Configuration.

3300, 3500 and 3500Plus (v3.0 or earlier): These system controllers do not support Remote Clients. Because of this, e-Route Configuration must be used to manage remote client information. However, all source, destination, and level information sent to the e-Route controller will be ignored. Source, destination, and level information for these system controllers must be managed by using the appropriate control system software (e.g. Win3300, Win3500, or Win3500Plus).

Ocelot, Bobcat, 2400 and 6600: These system controllers do not utilize a configuration such as the one used by the 3500Plus. Because of this, e-Route Configuration must be used to manage remote client information. In addition, the source numbers, destination numbers, and level numbers used by e-Route Configuration must correspond to the same numbers used by the system controller.

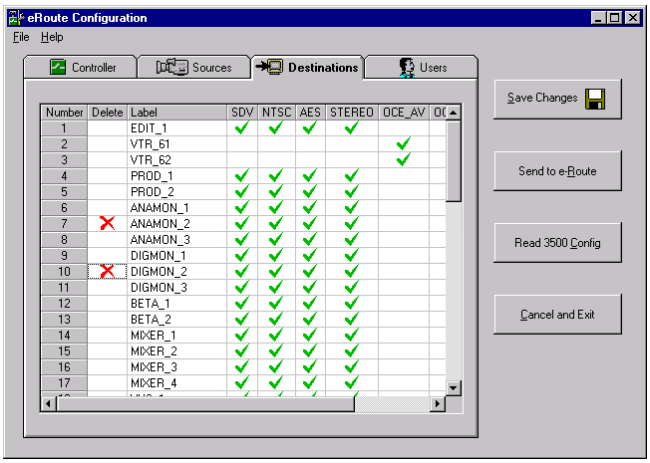


Figure 21. e-Route Configuration Destinations Tab

Users Tab

See Figure 22 for the Users Tab window. Use this window to manage Remote Client Names and Remote Client Passwords. Access permissions to levels, sources, destination, and salvos are also controlled here.

NOTE

3500Plus (v3.1 or later): Configurations for these system controllers should be managed with Win3500Plus, not e-Route Configuration.

3300, 3500 and 3500Plus (v3.0 or earlier): These system controllers do not support Remote Clients. Because of this, e-Route Configuration must be used to manage remote client information. However, all source, destination, and level information sent to the e-Route controller will be ignored. Source, destination, and level information for these system controllers must be managed by using the appropriate control system software (e.g. Win3300, Win3500, or Win3500Plus).

Ocelot, Bobcat, 2400 and 6600: These system controllers do not utilize a configuration such as the one used by the 3500Plus. Because of this, e-Route Configuration must be used to manage remote client information. In addition, the source numbers, destination numbers, and level numbers used by e-Route Configuration must correspond to the same numbers used by the system controller.

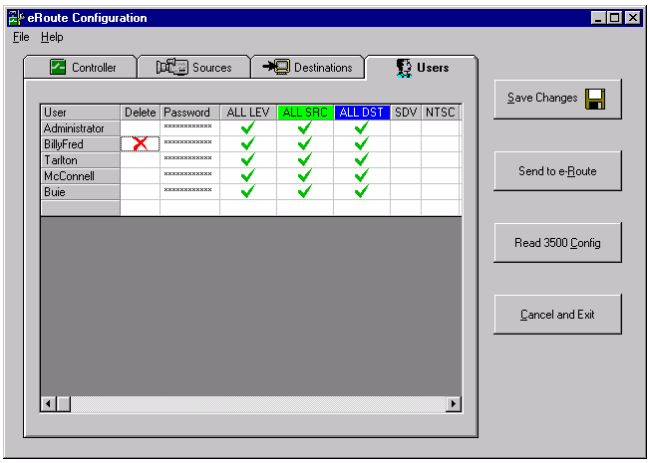


Figure 22. e-Route Configuration Users Tab

Notify e-Route Controller of System Controller Type

The e-Route controller must be notified of the type of system controller being used. This is done as follows:

1. Select the system controller from the **Controller Type** drop box on the **Controller** tab as shown in Figure 23.

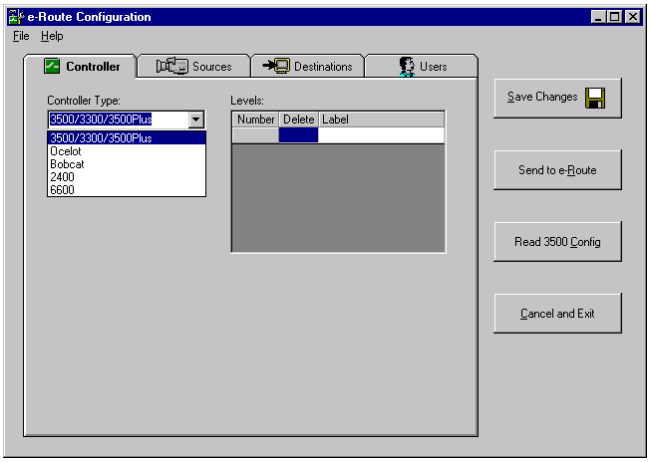


Figure 23. e-Route Configuration Controller Type Selection

8. Open the **File** menu and select **Send to e-Route** to display the log on window shown in Figure 24.

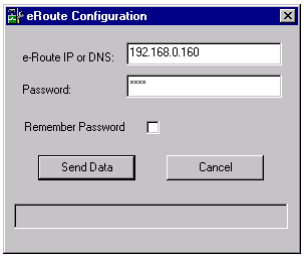


Figure 24. e-Route Configuration Send Log On Window

9. Enter one of the following in the **e-Route IP or DNS** box:

> **NOTE**
>
> Some networks may be configured so that IP addresses assigned by a DHCP server may expire after a period of inactivity. A new IP address will be assigned when the e-Route controller becomes active again. To determine the current IP address, see "Expiration of DHCP Server Assigned IP Addresses" on page 39.

- The DHCP IP Address recorded on page 33.
- The Static IP Address recorded on page 31.
- The DNS Name recorded on page 31.

10. e-Route Configuration connects with the e-Route controller by using the Remote Client name **Administrator**. Enter the current password for the remote client **Administrator** in the **Password** box.

> **NOTE**
>
> All remote client names and passwords are case sensitive.

> **NOTE**
>
> The password for the remote client **Administrator** is set to **pesa** prior to shipment. For security purposes, this password should be changed as soon as possible.

11. Click the **Send Data** button. The e-Route controller will now be configured to operate with the system controller.

> **NOTE**
>
> If the 3300/3500/3500Plus Controller Type was selected, the configuration will be automatically transferred from the system controller, to the e-Route controller, at this time.
>
> The other controller types (Ocelot, Bobcat, 2400, 6600) do not have a configuration that can be transferred to the e-Route Controller.

Transfer Configuration from e-Route Controller to e-Route Configuration

The configuration currently on the e-Route controller may be transferred to e-Route Configuration as follows:

1. Open the **File** menu and select **Receive from e-Route** to display the log on window shown in Figure 25.

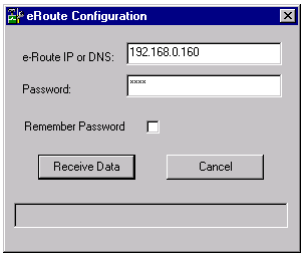


Figure 25. e-Route Configuration Receive Log On Window

12. Enter one of the following in the **e-Route IP or DNS** box:

> **NOTE**
>
> Some networks may be configured so that IP addresses assigned by a DHCP server may expire after a period of inactivity. A new IP address will be assigned when the e-Route controller becomes active again. To determine the current IP address, see "Expiration of DHCP Server Assigned IP Addresses" on page 39.

- The DHCP IP Address recorded on page 33.
- The Static IP Address recorded on page 31.
- The DNS Name recorded on page 31.

13. e-Route Configuration connects with the e-Route controller by using the Remote Client name **Administrator**. Enter the current password for the remote client **Administrator** in the **Password** box.

> **NOTE**
>
> All remote client names and passwords are case sensitive.

14. Click the **Receive Data** button. The configuration on the e-Route controller will then be transferred to e-Route Configuration.

e-Route Java Applet Operation

NOTE

The following Microsoft software must be installed on windows based Client PC's:

Microsoft Internet Explorer v5.0 or higher

Microsoft Virtual Machine v5.00.3802 or higher

Sun Microsystems JAVA2 Plugin V1.2 or higher

Web Browser Version Verification/Upgrade

e-Route requires the use of Microsoft Internet Explorer v5.0 or higher. To obtain the latest version, direct your browser to http://www.microsoft.com/windows/IE/.

Virtual Machine Version Verification/Upgrade

e-Route requires the use of Microsoft Virtual Machine v5.00.3802 or higher. To determine the version currently in use, check the properties of the file named jit.dll. To obtain the latest version, direct your browser to http://www.microsoft.com/java/.

Connecting to the e-Route Controller

The Remote Client PC is connected to the e-Route controller by pointing a web browser to the URL of the e-Route controller. Enter one of the following in the Address box of your web browser:

NOTE

Some networks may be configured so that IP addresses assigned by a DHCP server may expire after a period of inactivity. A new IP address will be assigned when the e-Route controller becomes active again. To determine the current IP address, see "Expiration of DHCP Server Assigned IP Addresses" on page 39.

- The DHCP Server assigned IP Address (from page 33): http://xxx.xxx.xxx.xxx
- The Static IP Address (from page 31): http://xxx.xxx.xxx.xxx
- The DNS Name (from page 31): http://dns_name_assigned_by_network_administrator/

The web page shown in Figure 26 will be displayed.

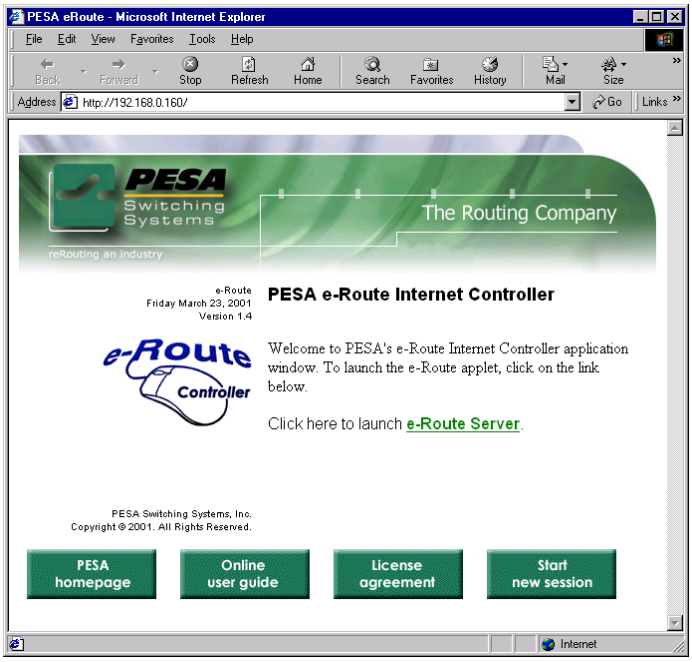


Figure 26. e-Route Java Applet Opening Window

NOTE

All remote client names and passwords are case sensitive.

Logging In to the e-Route Controller

Click on the "**e-Route Server**" hyperlink shown in Figure 26 to display the login window shown in

Figure 27. e-Route Java Applet User Login

Name and Password must be one of those created by e-Route Administrator (see "Users Tab" on page 47) and transferred to the e-Route controller.

Java Applet Main Window Operation

The Java Applet User Interface for e-Route V2.2 has changed significantly from the applets used in e-Route V2.1 and V1.5. In fact, it is a complete re-write of the old Java applet. This was done to correct inefficiencies of the old Java applet, as well as add new functionality. As much of the method of operation of the old applet as possible has been carried over to the new applet, however there are some changes. Also, the new applet has employed the new Java "Swing" component library. Most users will need to install the Java 2 plugin in order to run applets that include Swing components. The Java 2 plugin has been included on the e-Route Utilities CDROM. It can also be downloaded from the canonical java website, http://sun.java.com.

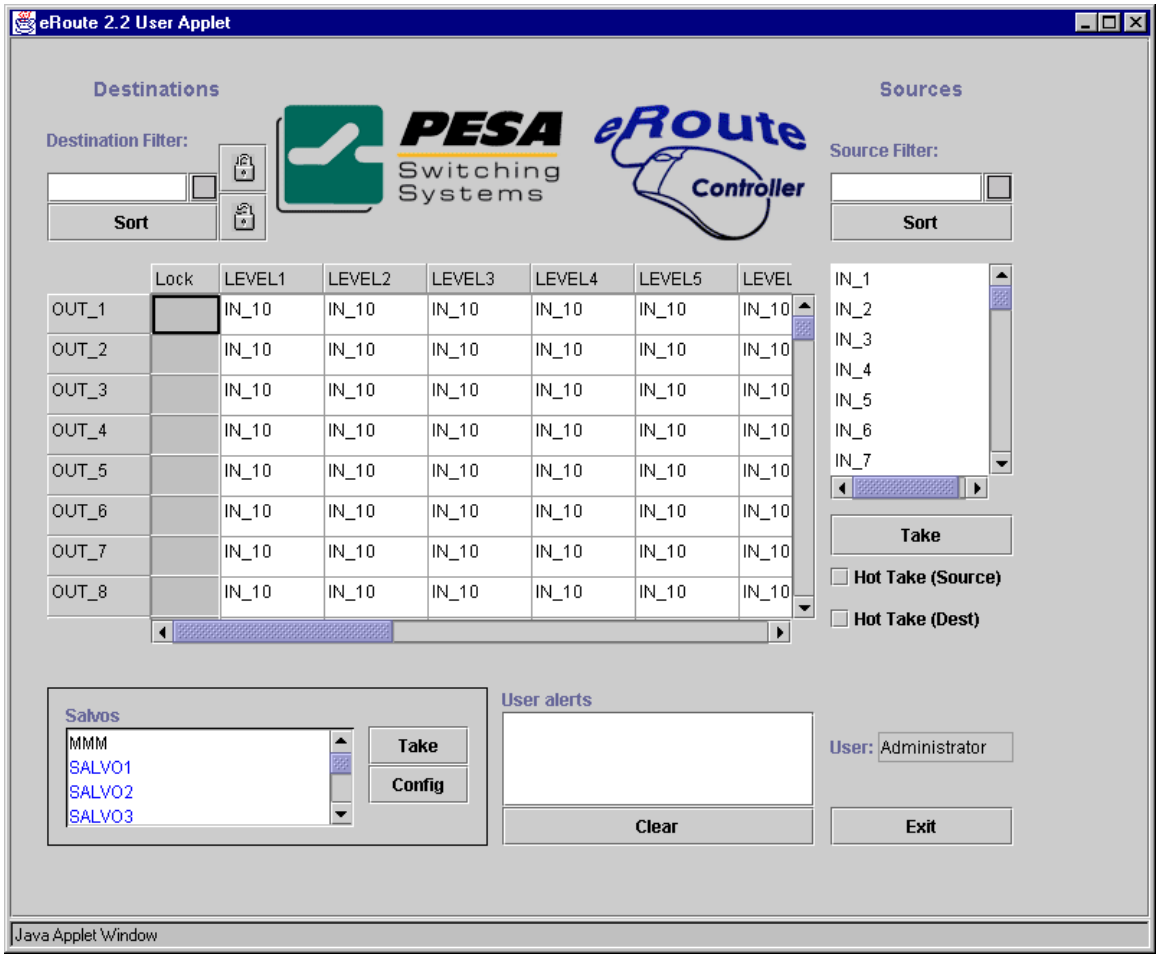


Figure 28. e-Route Java Applet Main Window

The controls on the applet have been grouped together in a format, which emulates as closely as possible the old applet, while also attempting to group together controls, which are related. Each block of controls will be discussed separately.

The Status Block

The status block displays which sources are switched to the displayed destinations and levels. Here is a screen shot of the status block with an explanation of its major features:

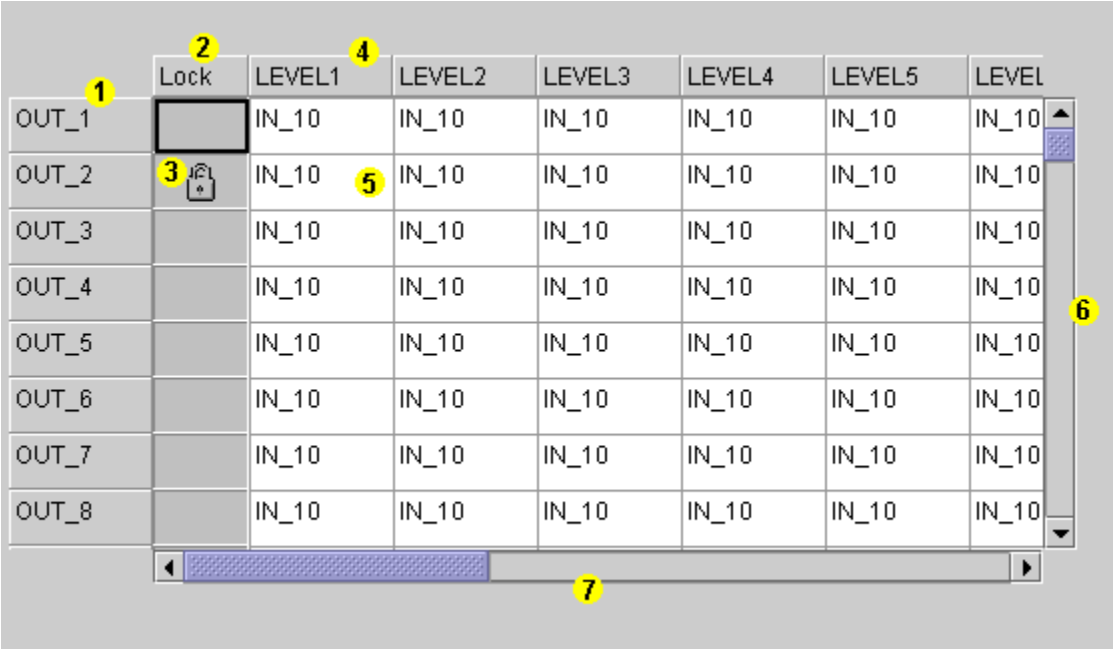


Figure 29. e-Route Main Window – Status Block

1. **Destination Column**

   This column shows which destinations are displayed in the status window. Only destinations which the user has privileges to see will be displayed.

2. **Lock Column**

   This column shows the lock status of the destinations, which are displayed.

3. **Locked Destination**

   If a destination is locked, this icon appears in the Lock column

4. **Level Status Columns**

   The source switched to each level on a destination is displayed in these columns. Only levels which the user has privileges to see will be displayed.

5. **Source On A Destination And Level**

   This block shows the source IN_10 switched to level LEVEL1 on destination OUT_2. Only sources which the user has privileges to see will be displayed.

6. **Destination Scroll Bar**

   This scroll bar allows the user to scroll up and down the destinations column and display different destinations. The scroll bar may or may not be displayed, depending on the number of destinations on the system, or the size of the screen.

7. **Level Scroll Bar**

This scroll bar allows the user to scroll the level columns back and forth, displaying different levels. The scroll bar may or may not be displayed, depending on the number of levels on the system, or the size of the screen.

The Destination Block

The Destination block contains controls that can be used to sort, filter, and lock destinations. Here is a screen shot of the Destination block with explanations of its major features:

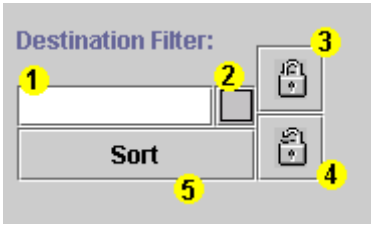


Figure 30. e-Route Main Window – Destination Block

1. **Filter Text Field**

   Only destinations containing or starting with the text entered in the filter box will be displayed when the Filter Toggle button is selected.

2. **Filter Toggle Button**

   Filters the destinations displayed using the text in the Filter text field. If no text is entered in the Filter text field, all destinations are filtered out (i.e. no destinations will be displayed). When selected, the filter button icon changes from an empty square to a crosshatched square.

3. **Lock Destination Button**

   Selecting this button will cause all selected destinations to be locked.

4. **Unlock Destination Button**

   Selecting this button causes all selected destinations to be unlocked.

5. **Sort Button**

   Sorts the destination rows in alphabetical order of the destination names. The button darkens when it is depressed. When not depressed, destinations are displayed in router order.

The Source Block

The Source block contains controls that can be used to sort, filter, and select a source to be switched to a destination. Here is a screen shot of the Source block with explanations of its major features:

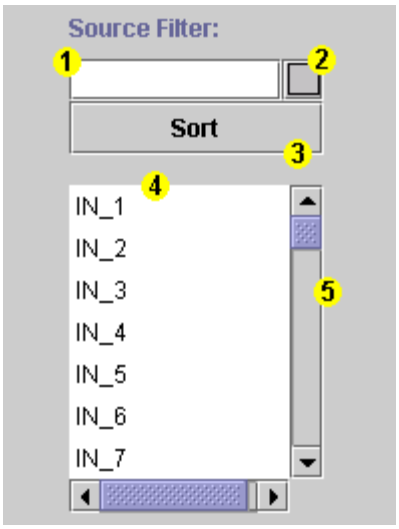


Figure 31. e-Route Main Window – Source Block

1. **Filter Text Field**

   Only sources containing or starting with the text entered in the filter box will be displayed when the Filter Toggle button is selected.

2. **Filter Toggle Button**

   Filters the sources displayed using the text in the Filter text field. If no text is entered in the Filter text field, all sources are filtered out (i.e. no sources will be displayed). When selected, the filter button icon changes from an empty square to a crosshatched square.

3. **Sort Button**

   Sorts the source rows in alphabetical order of the source names. The button darkens when it is depressed. When not depressed, sources are displayed in router order.

4. **Source List**

   The list of sources that the user has permissions to use. Only one source may be selected at a time.

5. **Source List Scroll Bar**

   This scroll bar allows the user to scroll the list of sources up and down, exposing more of the sources on the list.

The Take Block

The Take block contains controls that allow the user to switch sources to destinations. Here is a screen shot of the take block with explanations of its major features:

Figure 32. e-Route Main Window – Take Block

1. **Take Button**

   This button switches the selected source to the selected destination(s).

2. **Hot Take (Source) Checkbox**

   This checkbox, when selected, causes the selected destinations to be switched every time a new source is selected, without the "Take" button being pressed.

3. **Hot Take (Dest) Checkbox**

   This checkbox, when selected, causes the current source to be switched to the selected destination(s) every time a new destination(s) are selected, without the "Take" button being pressed.

The Salvo Block

The Salvo Block contains controls that allow the user to create, modify, display, and take salvoes. Salvoes that are read from a 3500 or 3500Plus controller are available for display and execution only. e-Route salvoes may be displayed, modified, and executed if the user has privileges to do so. Here is a screen shot of the Salvo block with explanations of its major features:

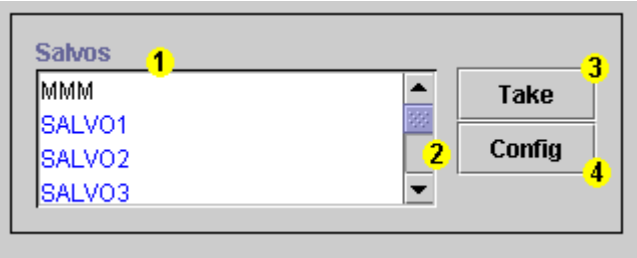


Figure 33. e-Route Main Window – Salvo Block

1. **Salvo List**

   The salvo that the user wishes to take or configure can be selected from this list. The names of salvoes displayed in black are the names of e-Route salvoes; the names of salvoes displayed in blue are 3500 salvoes.

2. **Salvo List Scroll Bar**

   This scroll bar allows the user to scroll up and down the salvo list, exposing more of the salvoes on the list.

3. **Salvo Take Button**

   This button takes the selected salvo.

4. **Salvo Config Button**

   This button displays the Salvo Configuration screen with the selected salvo displayed for configuration.

The Alert Block

The Alert block contains controls that display warning and alert messages to the user. Here is a screen shot of the Alert block with explanations of its major features:

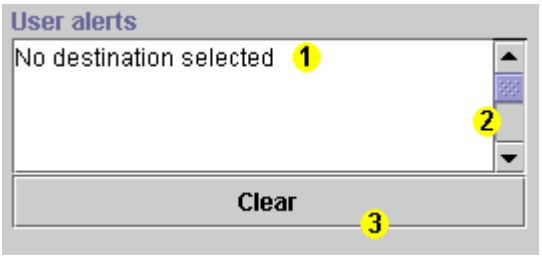


Figure 34. e-Route Main Window – Alert Block

1. **Alert Text Area**

   This text area displays the alert messages logged by the e-Route applet.

2. **Alert Text Area Scroll Bar**

   This scroll bar allows the user to scroll the text area up and down, exposing all alerts logged by the e-Route applet.

3. **Clear Button**

   This button clears all alerts from the text area. Once cleared, the alerts cannot be retrieved.

The Exit Block

The Exit block contains the Exit button, and the Username text field. Here is a screen shot of the Exit block:

Figure 35. e-Route Main Window – Exit Block

Pressing the Exit button causes the user to be logged off the e-Route, and the e-Route applet to exit. The text field titled "User:" contains the username of the current user.

Java Applet Salvo Window Operation

Configuration and creation of e-Route salvoes is made possible by the Salvo Configuration Interface. This interface is accessed through the "Config" button in the Salvo Block of the e-Route interface window. To configure an existing salvo, the user simply selects the desired salvo, then presses the "Config" button. To create a new Salvo, the user may press the "Config" button with no salvo selected. A small dialog will appear, prompting the user to key in the name of the new salvo. This will create a new, empty salvo, which the user may then configure. To create a salvo that already contains destinations, the user simply highlights the desired destinations and then presses the "Config" button. The salvo name dialog will appear, and after a new unique name is chosen for the salvo, the new salvo will appear in the salvo configuration window with the chosen destinations in the same state as they were in when chosen.

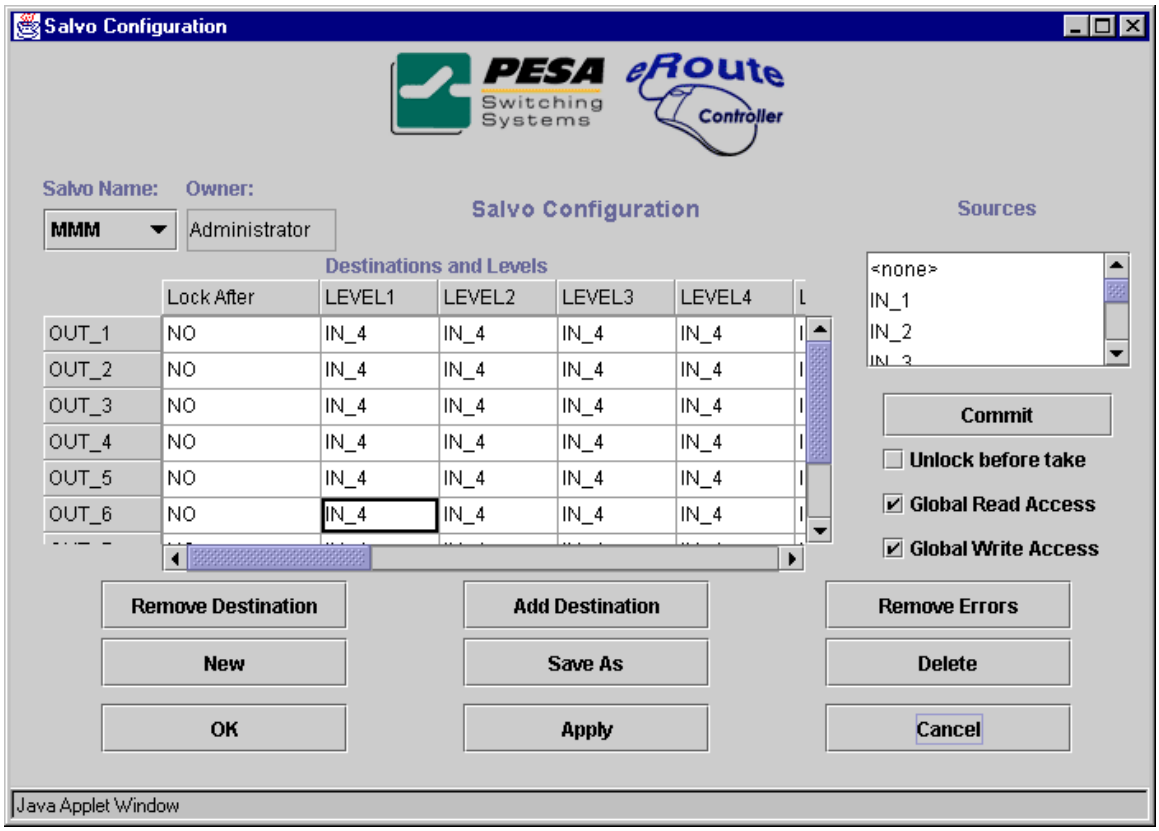


Figure 36. e-Route Java Applet Salvo Window

Each block of this window is described below.

The Name Block

The Name block contains the name of the salvo being configured, and the name of the owner of the salvo. The salvo name is in a pull-down selection box that will display all of the salvoes the user has privileges to see. The active salvo may be changed by selecting any of the salvoes from this pull-down. Below is a screen shot of the Name Block with descriptions of its major components:

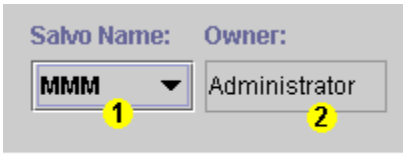


Figure 37. e-Route Salvo Window – Name Block

1. **Salvo Selection Pull down**

   This control displays the name of the active salvo. The active salvo displayed in the Salvo Configuration screen may be changed by selecting a different salvo from this control.

2. **Salvo Owner Name**

   This text field contains the name of the salvo's owner. The owner of a salvo always has privileges to view and edit the salvo.

The Salvo Destination Block

The Salvo Destination Block shows the destinations that are to be switched when the salvo is taken, and what sources are to be switched to what levels on each destination. It also shows whether the destination is to be locked after the salvo is taken. Below is a screen shot of the Salvo Destination block with descriptions of its major components:

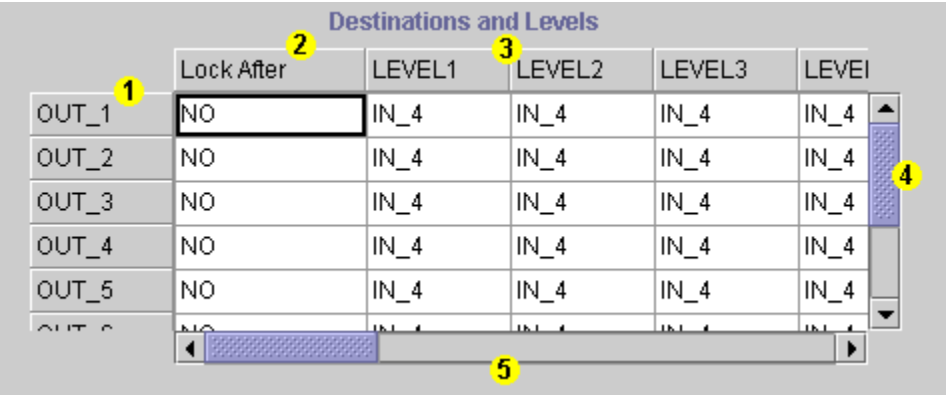


Figure 38. e-Route Salvo Window – Salvo Destination Block

1. **Destination Column**

   This column displays the names of the destinations to be switched when the salvo is taken.

2. **Lock After Column**

   This column displays the lock state of the destination after the salvo has been taken. Clicking in this column will toggle the state for a destination.

3. **Level Columns**

   These columns display which sources will be switched to each level on a destination. The source named "<none>" denotes no switch is to be made on a destination and level.

4. **Destination Scroll Bar**

   This scroll bar allows the user to scroll up and down the destinations column and display different destinations. The scroll bar may or may not be displayed, depending on the number of destinations in the salvo, or the size of the screen.

5. **Level Column Scroll Bar**

   This scroll bar allows the user to scroll the level columns back and forth, displaying different levels. The scroll bar may or may not be displayed, depending on the number of levels on the system, or the size of the screen.

The Source Block

The Source Block contains the list of sources that the user has permission to use, and the Commit button, which will update the selected destinations and levels of the current salvo with the selected source. Below is a screen shot of the Source Block with and explanation of its major components:

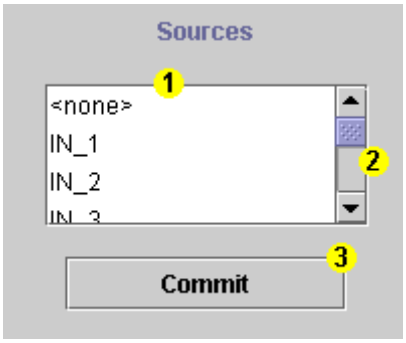


Figure 39. e-Route Salvo Window – Source Block

1. **Source List**

   The Source list lists all sources that the user has privileges to use. The special source "<none>" may be placed on any level of any destination. It denotes that no switch is to occur on the destination and level when the salvo is taken.

2. **Source List Scroll Bar**

   This scroll bar allows the user to scroll the list of sources up and down, exposing more of the sources on the list.

3. **Commit Button**

   This button commits the selected source to the selected destinations and levels.

The Privileges Block

The Privileges Block shows what access privileges the user has been given for the active salvo. It also contains the checkbox used to denote whether or not destinations in the salvo should be unlocked before the salvo is taken. Below is a screen shot of the Privileges block with explanations of its major components:

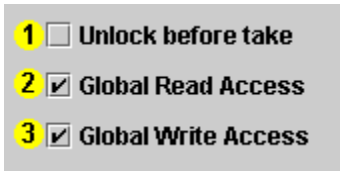


Figure 40. e-Route Salvo Window – Privileges Block

1. **Unlock Before Take Checkbox**

   This checkbox should be selected if the owner wants the destinations in the salvo to be unlocked before the salvo is taken. Checking this checkbox will cause the e-Route to attempt to unlock a destination before attempting a switch. If the destination is left locked, the specified switch will not occur on the destination. By default, it is unchecked.

2. **Global Read Access Checkbox**

   This checkbox should be checked if the owner wants all users on the e-Route to be able to read and take this salvo. By default, it is checked.

3. **Global Write Access Checkbox**

This checkbox should be checked if the owner wants all users on the e-Route to be able to change this salvo. By default, it is checked.

The Edit Controls Block

This block contains all the controls used to create, delete, and edit salvoes. Below is a screen shot of the Edit Controls Block, with explanations of its major components:

Figure 41. e-Route Salvo Window – Edit Controls Block

1. **Remove Destination Button**

   Pressing this button will remove the selected destinations from the salvo.

2. **Add Destination Button**

   Pressing this button will cause a small popup menu to appear. The user may select the desired destinations, and they will be added to the salvo with the source "<none>" on each level.

3. **Remove Errors Button**

   If changes are made to names of sources or destinations on the controller that is being controlled by the e-Route, salvoes defined for the previous controller configuration can have errors. These errors will be highlighted in red. Pressing the Remove Errors button will cause all erroneous destinations to be removed, and all erroneous sources to be changed to "<none>".

4. **New Button**

   Pressing this button will clear the salvo configuration window and prompt for the name of the new salvo. When a new unique salvo name is entered, the new salvo will be displayed in the window. The user may then configure the new salvo.

5. **Save As Button**

   Pressing this button will cause a prompt for a new salvo name to appear. After the user enters a new unique salvo name, the current salvo will be copied and displayed on the salvo configuration screen. The user may then change the salvo's configuration. It is important to note that the new salvo will not be saved until the user presses the "OK" or "Apply" buttons.

6. **Delete Button**

   Pressing this button will cause the current salvo to be deleted.

7. **OK Button**

   Pressing this button will cause any changes that have been made to a salvo to be committed, and the salvo configuration window to close. Edits to existing salvoes, as well as newly created salvoes, will be saved.

8. **Apply Button**

   This button also causes changes to salvoes to be committed, but does not close the salvo configuration window.

9. **Cancel Button**

   Pressing this button will cause any current changes to a salvo to be discarded, and the salvo configuration window to close.

Step-by-Step Instructions for Taking a Source to a Destination Using the e-Route Java Applet User Interface

The following is a quick demonstration of how to use the e-Route Java Applet User Interface to take a selected source to a selected destination.

Step 1: Select the Desired Source

Position the mouse pointer over the desired source and click once. Use the scroll bar to locate the desired source if necessary. The selected source will become highlighted. In the example pictured below, the source IN_35 is highlighted.

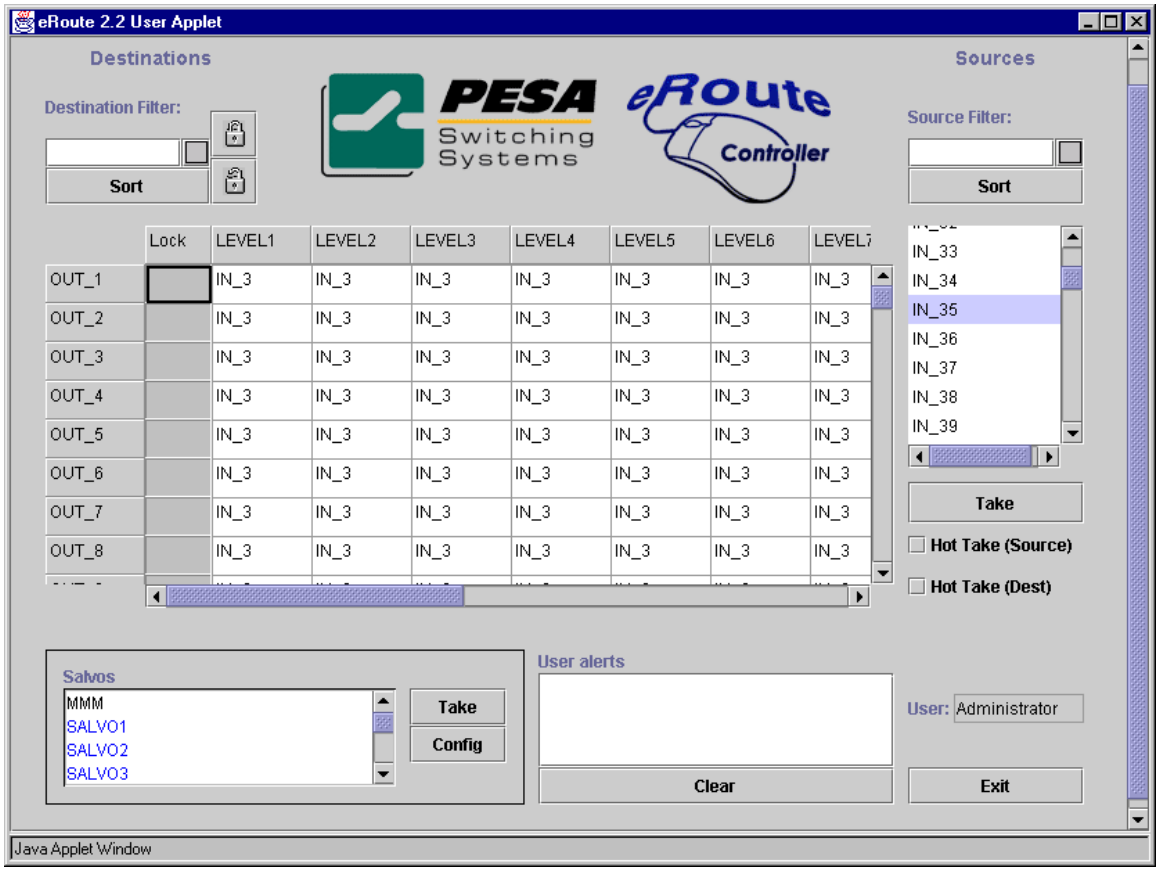


Figure 42. e-Route Take Switch – Select Source

Step 2: Select the Desired Destination(s).

Position the mouse pointer over the desired destination and click once. Clicking on the destination name will highlight all levels on the destination, regardless of whether they are visible or not. Levels the user does not have privileges to view will not be changed. Holding the "Ctrl" key down will allow the addition of more destinations. In the example pictured below, the destination OUT_12 has been selected, as well as levels LEVEL2, LEVEL3, and LEVEL4 on destinations OUT_14, OUT_15, and OUT_16.

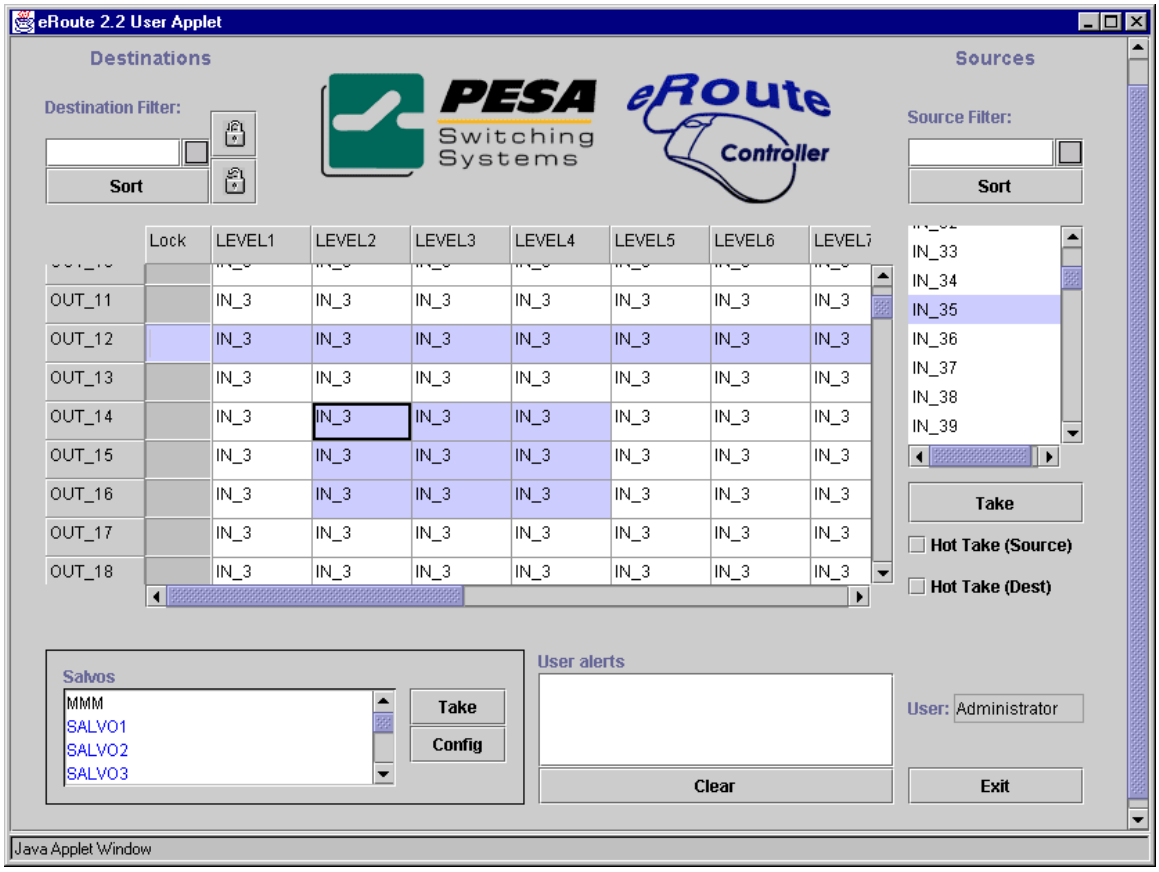


Figure 43. e-Route Take Switch – Select Destination(s)

Step 3: Press the "Take" Button.

Position the mouse pointer over the "Take" button and click once.

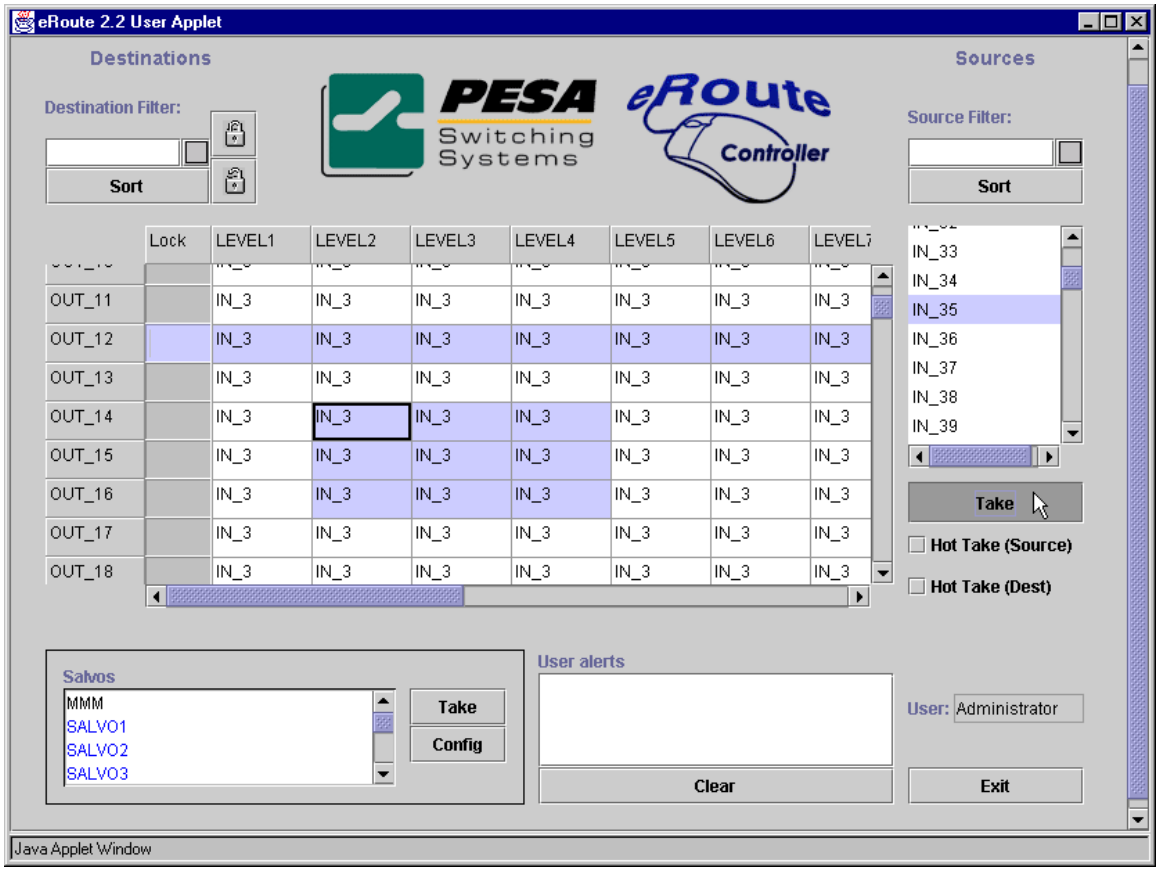


Figure 44. e-Route Take Switch – Press Take

Step 4: The Destinations Are Updated by the E-Route.

As seen the example pictured below, the selected destinations are updated to the new source by the e-Route applet.

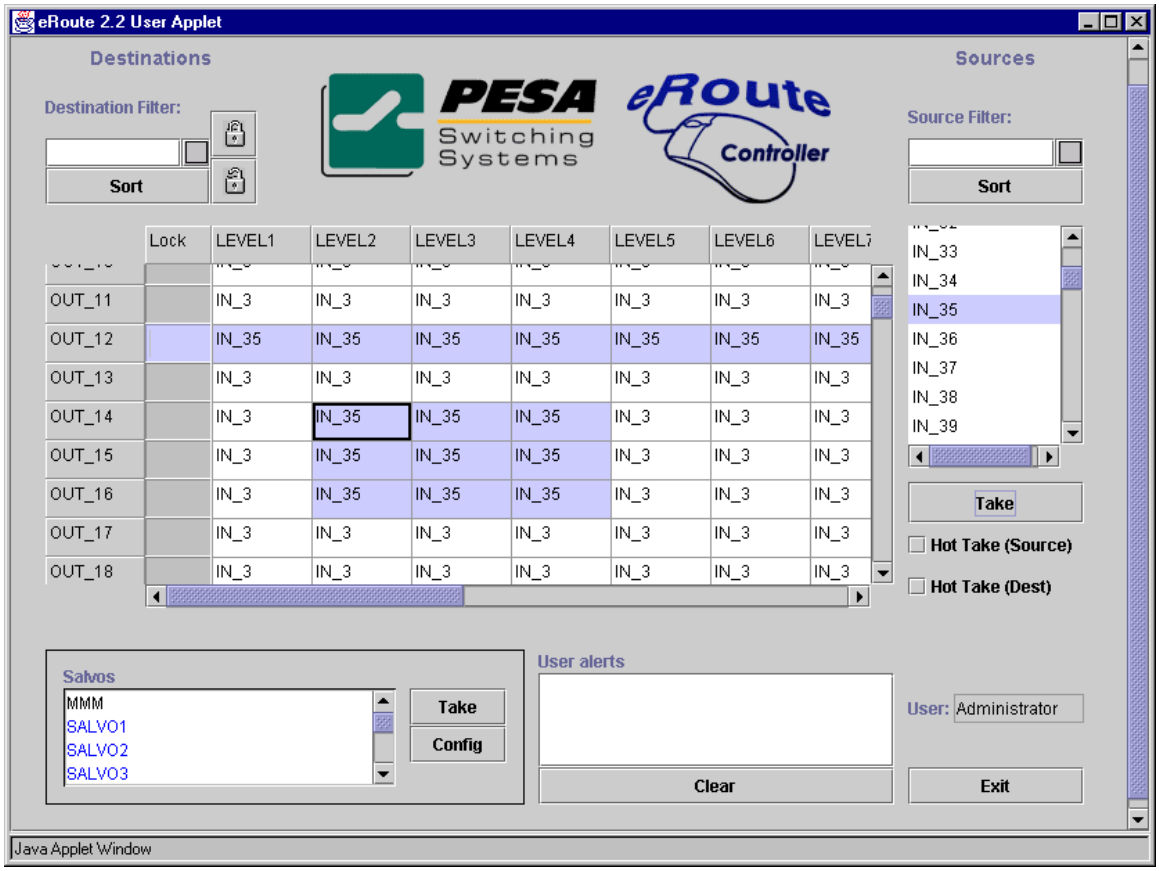


Figure 45. e-Route Take Switch – Destinations Updated

Step-by-Step Instructions for Taking a Salvo Using the e-Route Java Applet Interface

The following is a quick demonstration of how to use the e-Route Java Applet User Interface to take a selected source to a selected destination.

Step 1: Select the Desired Salvo

Position the mouse pointer over the desired salvo and click once. The selected salvo will become highlighted.

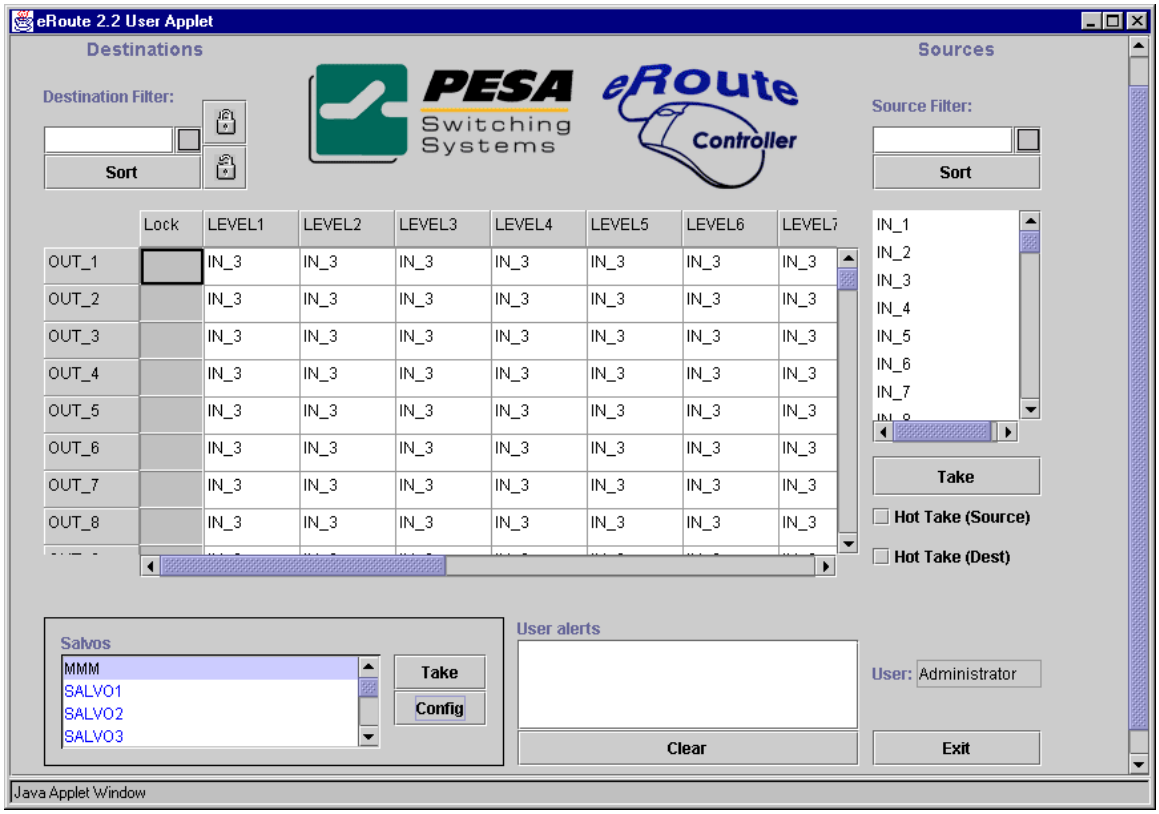


Figure 46. e-Route Take Salvo – Select Salvo

Step 2: Press the "Take" Button in the Salvo Block.

Position the mouse pointer over the "Take" button in the Salvo block and click once.

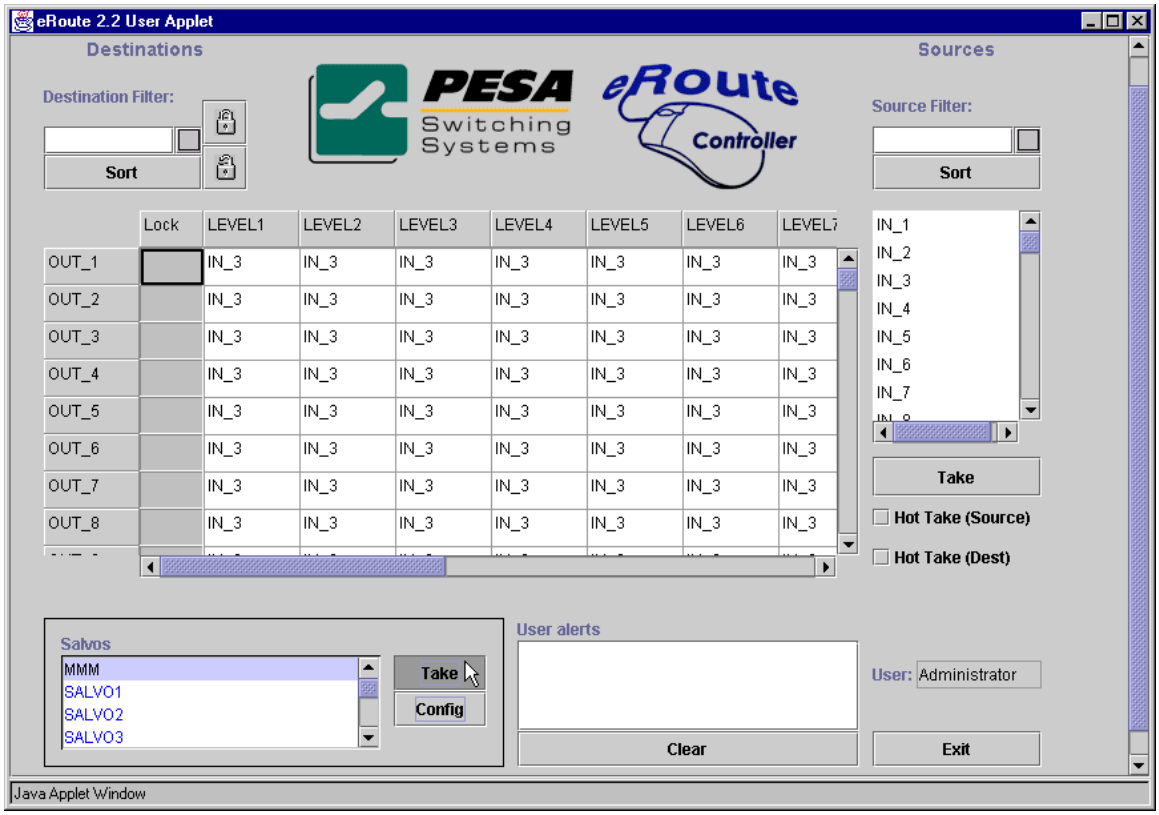


Figure 47. e-Route Take Salvo – Press Salvo Take

Step 3: The E-Route Executes the Salvo and the Destinations Are Updated By the E-Route.

As seen the example pictured below, the selected destinations are updated to the new source by the e-Route applet.

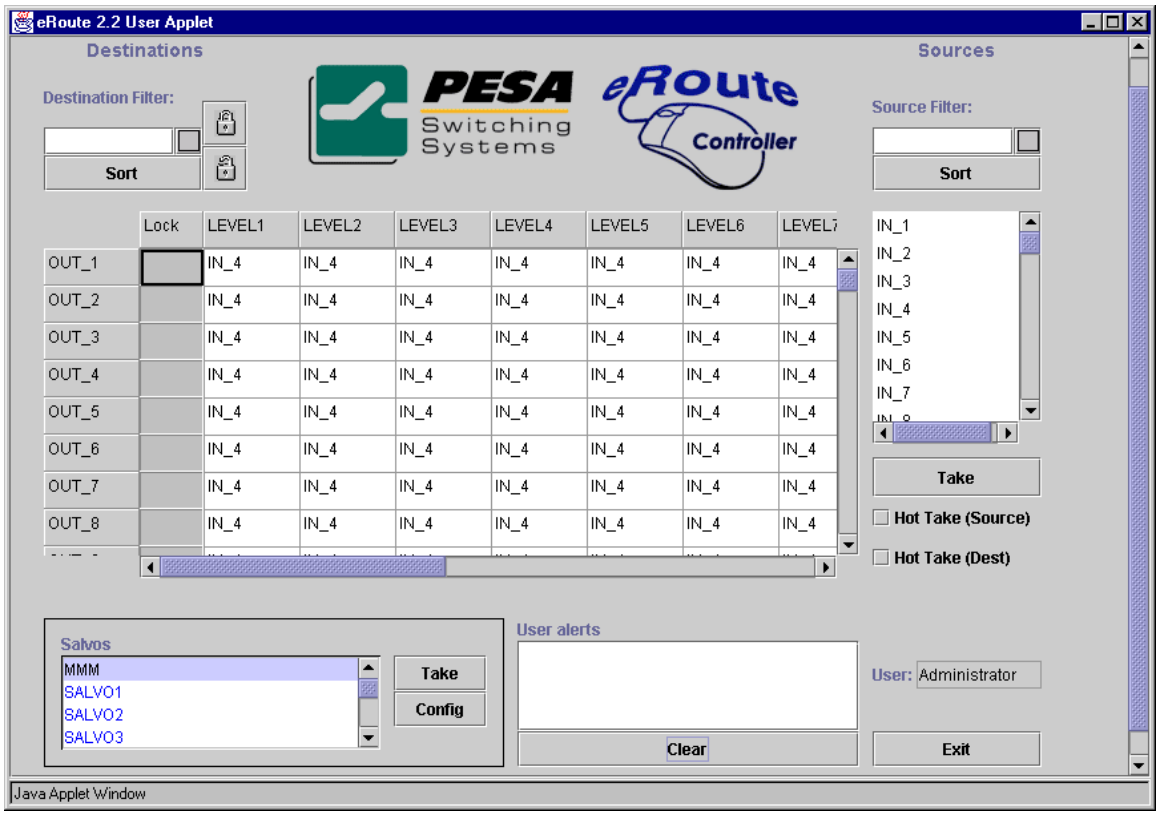


Figure 48. e-Route Take Salvo – Update Destinations

Chapter 4 – Maintenance and Repair

Periodic Maintenance

There are no periodic maintenance requirements for this equipment.

CAUTION

This equipment contains static sensitive devices. A grounded wrist strap and mat should be used when handling the internal circuit cards.

Battery Replacement

An onboard 200 mAh nominal capacity, lithium coin-cell battery is provided for the CMOS Clock/Calendar and for battery backing-up Solid State Disk SRAMs. This battery is soldered in place and is not user serviceable.

CAUTION

Attempting to replace the lithium coin-cell battery may void the warranty on this equipment.

Troubleshooting

There are no user-serviceable components in this equipment. If the operation does not appear to be normal, please contact the PESA Customer Service Department. Skilled technicians are available to assist you 24 hours per day, seven days per week.

Detailed contact information for the Customer Service Department is located inside the front cover of this document.

Repair

Before attempting to repair this equipment, please consult your warranty documents and/or the PESA Customer Service Department. Unauthorized repairs may void your warranty.

CAUTION

Many of the PC boards in this equipment contain large numbers of SMT (Surface Mount Technology) components. Special tools are required to replace these components without causing damage to adjacent areas. It is strongly recommended that PESA Customer Service be consulted prior to attempting to repair any of the PC boards in this equipment

Replacement Parts

Only parts of the highest quality have been used in the design and manufacture of this equipment. If the inherent stability and reliability are to be maintained, replacement parts must be of the same high quality.

For this reason, we suggest that you consult our Customer Service Department before installing any parts not purchased from PESA.

Factory Service

Before returning any equipment to our factory for service or repair, please contact our Customer Service Department for an RMA number.

Detailed contact information for the Customer Service Department is located inside the front cover of this document.

PESA Documentation

IL35-TBD	Drawing Tree, e-Route Controller
WI50-0284	Wiring Diagram, GCN AC Power Cable
WI50-0285	Wiring Diagram, GCN DC Power Cable
WI50-0286	Wiring Diagram, GCN CPU Power Cable
WI50-0287	Wiring Diagram, GCN Front Panel Cable
WI50-0288	Wiring Diagram, GCN I/O Cable
WI50-0289	Wiring Diagram, GCN Hard Disk Power Cable
81-9062-0407-0	CPU Link Protocol No. 1 (P1)
81-9062-0408-0	CPU Link Protocol No. 1 Extensions (P1E)
81-9062-0448-0	PESA Internet Remote Control Protocol (PIRC)

Glossary

Revised: 08 June 2001

NOTE

Entries in this glossary that relate to specific system controller features are made with reference to the PESA 3500Plus (v3.1).

AES/EBU Audio

Informal name for a digital audio standard established jointly by the Audio Engineering Society and the European Broadcasting Union.

All Call

A diagnostic procedure that causes a single physical input to be switched to a range of physical outputs, for a specified component, with a single command.

Example: Assume the existence of component RED spanning physical inputs 1 through 6 and physical outputs 1 through 6. All call can be used to switch physical input 3 to physical outputs 2 through 6 with a single command.

See also: Diagonal.

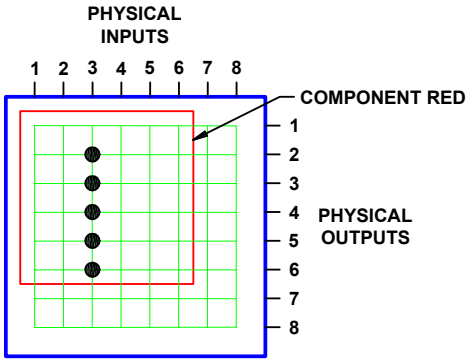


Figure 49. All Call

ANSI

American National Standards Institute.

Baud

The number of times a communication signal changes state (voltage, frequency, etc.) in one second.

Generally, only one bit of information is encoded in each change of state for signals operating below 300 baud. At these speeds, baud equals the number of bits transmitted per second.

At 300 baud and above, communications standards generally allow more than one bit to be encoded in each change of state. For example, modems operating at 1200 bits per second, and conforming to the Bell 212A standard, operate at 300 baud using a modulation technique called

phase modulation that transmits four bits per baud. At these speeds, data transmission rates are usually expressed in bits per second (b/s) rather than baud.

Baud was originally a unit of telegraph signaling speed, set at one Morse code dot per second. It was proposed at the International Telegraph Conference of 1927, and named after French Engineer J.M.E. Baudot (1845-1903).

Black Burst

A composite color video signal that has sync, color burst, and black video. It is used to synchronize other video sources to the same sync and color information.

See also: House Sync.

Block

A group of contiguous crosspoints in a routing switcher that form the smallest unit on which confidence is checked.

Because of the nature of the circuits involved, individual crosspoints cannot be checked to see if they are operating correctly. Instead, the control circuitry shared by groups of crosspoints is monitored. These groups of crosspoints, called blocks, vary in size according to product type. Block size for RM5 routing switchers is 8 inputs by 2 outputs and block size for PRC routing switchers is 8 inputs by 8 outputs. If any block gives a confidence error, all crosspoints in that block are assumed to be non-functional.

Block Checking

The continuous, sequential monitoring of confidence for each block in a routing switcher.

Block checking occurs automatically and continuously but can be disabled for troubleshooting purposes.

Blocked Destination

See: Source Block.

Blocked Source

See: Source Block.

Breakaway Switch

A switch where multiple sources are switched to a single destination on multiple levels.

Example: Assume the existence of sources VTR1 and VTR2, and destination MON1, defined on levels VIDEO and AUDIO. If VTR1 is switched to MON1 on the VIDEO level, and VTR2 is switched to MON1 on the AUDIO level, a breakaway switch has been taken.

Table 21. Breakaway Switch

Destination	Source	
	Level: VIDEO	Level: AUDIO
MON1	VTR1	VTR2

See also: Follow Switch.

Category

Entities assigned to keys on remote control panels, and used to select sources, destinations, and reentries.

Example: The categories VTR, 1, 2, and 3 can be used to select the source names VTR1, VTR2, and VTR3.

Category names:

1. Shall be created using only the following characters:
   - Upper case letters A through Z
   - Lower case letters a through z if enabled in the control system software
   - Numbers 0 through 9
   - The following special characters: space ( ), hyphen-minus (-), exclamation mark (!), ampersand (&), plus sign (+), equals sign (=), commercial at (@), and low line (_)
2. Shall contain a minimum of one, and a maximum of eight characters.
3. May begin with a space, end with a space, have embedded spaces, and consist of a single space. All spaces other than embedded spaces shall be entered by using the tilde (~) key instead of the space bar.
4. Shall be unique in the universe of category names.

Chop

To rapidly switch two different video signals into a monitor or other piece of test equipment. This is done to compare some signal characteristic, usually for quality control.

Chop Rate

The parameter used to control the switching rate when chopping two signals. The signal switching rate is determined as follows:

$$\frac{\text{Video Frame Rate (frames/s)}}{\text{Chop Rate}} = \text{Signal Switching Rate (switches/s)}$$

Figure 50. Chop Rate

For example, a chop rate of 1 used with NTSC signals (30 Frames/Second) will cause the signals to be switched 30 times per second. A chop rate of 60 used with the same signals will cause them to be switched every two seconds.

Component

The most basic signal element that can be switched by a single crosspoint. For example, in RGB video, “Red”, “Green”, and “Blue” are components; in stereo audio, “Left” and “Right” are components.

In Matrix Space, components of like type are usually grouped together into rectangular matrices of crosspoints having contiguous inputs and outputs. These matrices are also referred to as components and are grouped together into levels.

Figure 51 shows a 2x2 RGB video level (VID) consisting of three components (RED, GRN, and BLU).

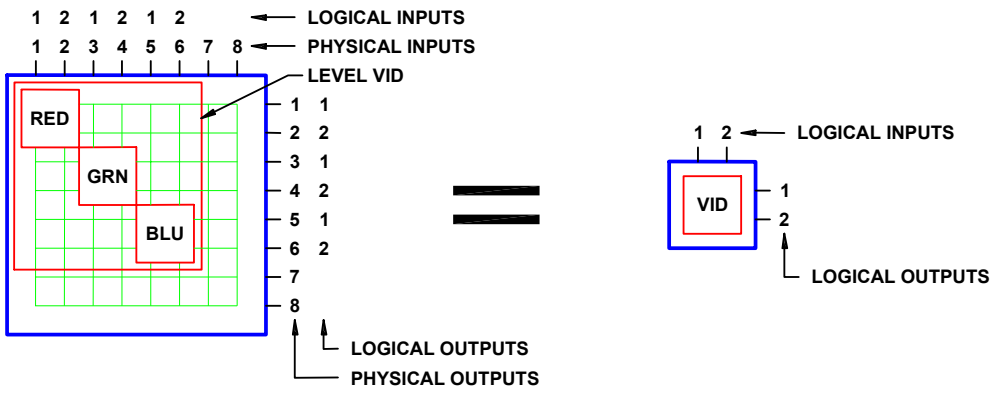


Figure 51. Component

As a general rule, users control the switching of levels, but component switching is handled automatically by the switching system. As shown in Figure 51, a user can specify a single logical switch, such as VID Input 1 to VID Output 2. This would result in the control system software taking three physical switches by activating crosspoints (1,2), (3,4), and (5,6).

Component names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Composite Video

A type of video signal that contains luminance, chrominance, blanking, and synchronizing information. NTSC, PAL, and SECAM are composite video signals, as opposed to RGB video which is not.

See also: Vertical Sync Signal.

Confidence

A property of a block that indicates whether or not the circuitry controlling the crosspoints in the block is functioning correctly.

When block checking determines that a block is not functioning correctly, the block is said to have a confidence error.

Confidence Error

See Confidence.

Configuration

A collection of system definitions that define the environment in which the system controller operates.

Each configuration is stored as a collection of files (.dbf or .txt) in a separate folder.

Configuration names may contain up to 32 alphanumeric characters.

Configuration Lock

A security measure enabled when a configuration is being uploaded or downloaded.

A configuration lock is used to ensure that only one user at a time may download a configuration to the controller.

Control Panel

See: Panel.

CPU Link

A bi-directional communication interface. A CPU link has two components: a serial port (either RS-232 or RS-422), and a protocol to govern how the port is used.

Crosspoint

The circuitry and components on a printed circuit board that constitute a single physical switch.

See also: Physical Switch.

Data Key

A user configurable control panel key, whose assigned function is used when the panel is in any mode except Salvo Select Mode.

Many control panels have user configurable keys. Each key can be assigned two functions, one as a data key and one as a salvo key. When the keys are pressed, the data key functions are used except when the panel is in salvo mode.

Data Key List

A named list of the functions assigned to each data key on a panel.

Multiple panels may share a data key list as long as they are the same type of panel. Different panel types may not use the same data key list.

Data key list names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Default Destination

The destination for which status will be displayed when power is applied to a panel, or when a new configuration is downloaded to the controller.

Although not mandatory, it is recommended that a default destination be selected for each panel.

Destination

One or more logical outputs (limited to one per level), on one or more levels, that are switched together as a group.

Destination names may be created by using categories, and:

1. Shall be created using only the following characters:
    - Upper case letters A through Z
    - Lower case letters a through z if enabled in the control system software
    - Numbers 0 through 9
    - The following special characters: space ( ), hyphen-minus (-), exclamation mark (!), ampersand (&), plus sign (+), equals sign (=), commercial at (@), and low line (_)
2. Shall contain a minimum of one, and a maximum of eight characters.
3. Shall not begin or end with a space.

4. Shall be unique in the universe of destination and reentry names.

See also: Category.

Destination Block

See: Source Block.

Destination Group

See: Destination.

Destination Include List

A named list of the destinations a specific control panel is authorized to control.

A destination include list may be shared by multiple panels.

The default destination assigned to a panel may be controlled even if it is not on the destination include list.

Destination include list names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Destination Number

A number assigned to each destination by the controller and used by CPU Protocol 1.

Destination numbers are also assigned to reentries.

Destination Status

See: Status.

Diagonal

A diagnostic procedure that causes a range of physical inputs to be switched to a range of physical outputs, in a diagonal pattern starting from a specified coordinate and continuing until the either the inputs or outputs are exhausted, for a specified component, with a single command.

Example: Assume the existence of component RED spanning physical inputs 1 through 6 and physical outputs 1 through 6 on a routing switcher. A diagonal with a starting input of 2 and a starting output of 1 would cause the following physical switches to be taken: (2,1), (3,2), (4,3), (5,4), and (6,5).

See also: All Call.

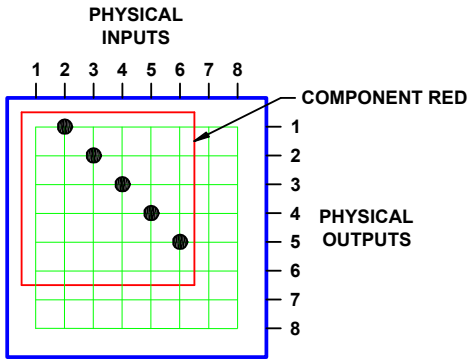


Figure 52. Diagonal

EIA

Electronic Industries Alliance.

Follow Switch

A switch where a single source is switched to a single destination on all levels. An abbreviated form of audio-follow-video switch.

Example: Assume the existence of source VTR1 and destination MON1 defined on levels VIDEO and AUDIO. If VTR1 is switched to MON1 on both the VIDEO level and AUDIO level, a follow switch has been taken.

This is the most common manner in which switches are taken on a routing switcher.

Table 22. Follow Switch

Destination	Source	
	Level: VIDEO	Level: AUDIO
MON1	VTR1	VTR1

See also: Breakaway Switch.

House Black

See: House Sync.

House Sync

A composite color video signal that has sync, color burst, and black video. It is used to synchronize video sources, and other equipment, to the same sync and color information.

Index

Obsolete. Prior to 3500Plus v3.0, indices were numbers used with categories to construct source, destination, and reentry names.

See also: Category.

Input Offset

In matrix space, the amount by which the origin of a component on strobe x, is offset from the origin of strobe x, measured along the input axis.

The coordinates of crosspoints in matrix space are determined by the strobe they reside on, and their input and output numbers. They are given in the form (input,output) on strobe x. The origin of a component (a matrix of crosspoints) is designated by the point that falls nearest the origin of its strobe (1,1). In Figure A below, the 3x4 component bounded by coordinates (3,2), (5,2), (5,5), and (3,5) has its origin at (3,2).

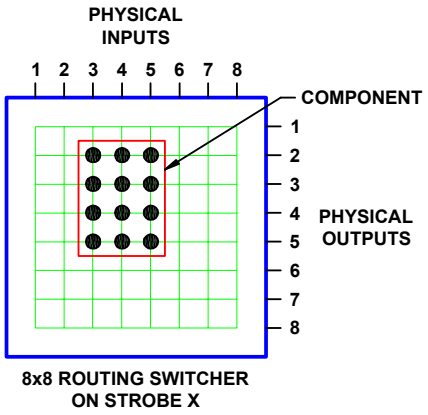


Figure 53. Input Offset, Single Routing Switcher

Input offset is the amount by which the origin of a component is offset from the origin of its strobe, measured along the input axis. A component whose origin coincides with that of its strobe (1,1) will have an input offset of 0. The component shown in Figure 53 has an input offset of 2.

When multiple routing switchers are assigned to the same strobe, the input and output connectors are renumbered to provide a unique coordinate for each crosspoint. Crosspoint coordinates are then determined in the same manner as above. The component shown in Figure 54 has its origin at (12,7) and an input offset of 11.

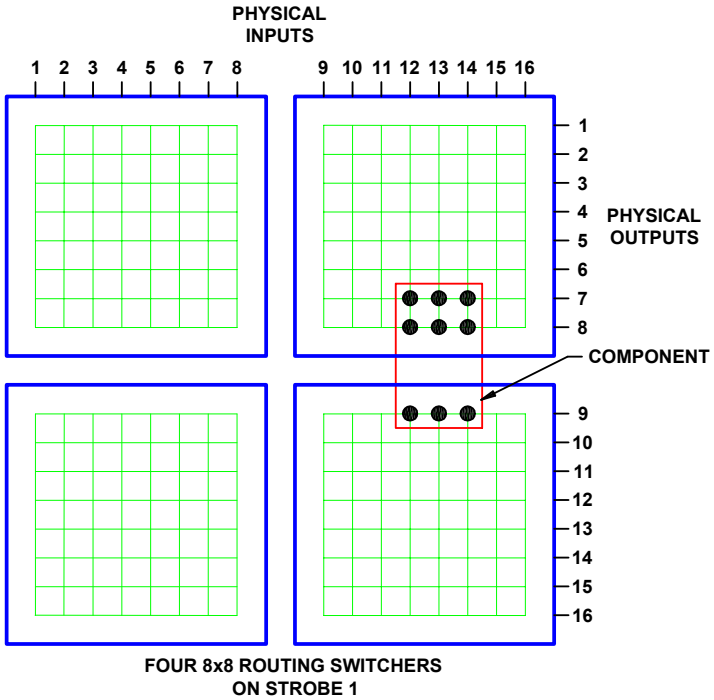


Figure 54. Input Offset, Multiple Routing Switchers

Level

A group of related components that are switched together.

A level is sometimes referred to as a level of control and is the basic granularity seen by a user. The components that comprise a level will always be switched together except when performing diagnostic operations.

Figure 55 shows a 2x2 RGB video level made up of three components, “RED”, “GRN”, and “BLU”, all of which are switched together at the same time.

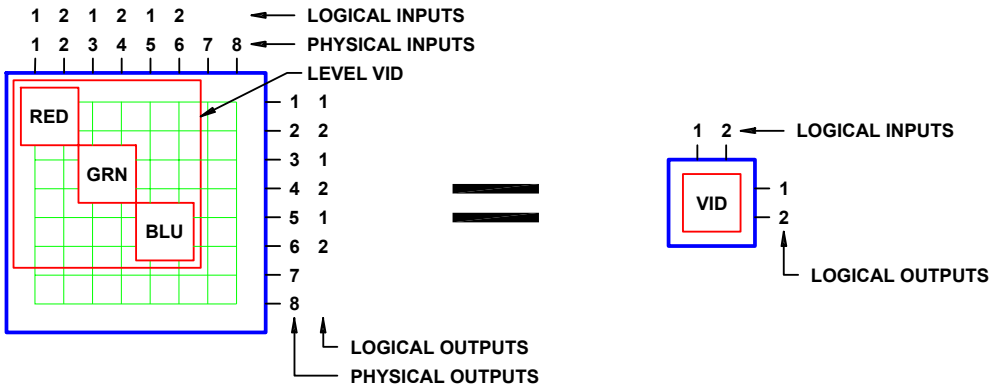


Figure 55. Level

As a general rule, users control the switching of levels, but component switching is handled automatically by the switching system. As shown in Figure 55, a user can specify a single logical switch, such as VID Input 1 to VID Output 2. This would result in the control system software taking three physical switches by activating crosspoints (1,2), (3,4), and (5,6).

Level names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Level Order

A property assigned to a level that controls the order of display when levels are displayed on a control panel, or addressed in CPU link protocols.

Levels of Control List

A named list of the levels a specific control panel is authorized to control.

Multiple panels may share a levels of control list.

Levels of control list names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Local Modem

A modem connected to a PC running control system software such as Win3500Plus.

See also: Remote Modem.

Lock

A property placed on a destination that prevents all panels and ports from taking a switch on that destination, including the panel or port that locked it.

Locks may be cleared by any panel or port that has the same requester code and lock priority as the panel that locked the destination, that has a higher lock priority, or that has a lock priority of 0 (zero).

See also: Lock Priority, Protect.

Lock Priority

A property of panels and ports that allows them to be grouped with other panels or ports for the purpose of establishing lock and protect authority.

The lower the lock priority number, the higher the priority. Panel lock priorities not explicitly defined automatically default to "0" which gives absolute authority to clear any lock or protect on the system.

See also: Lock, Protect.

Logical Input

One or more physical inputs that are switched together as a group.

Logical inputs and outputs are switched level-by-level. Since each level may have more than one component, switching a single logical input or output may involve switching more than one physical input or output.

For example, a RGB input signal represents three physical inputs because it is connected to three input connectors on the routing switcher. However, since all three components (R, G, and B) are switched together as a level, it is a single logical input.

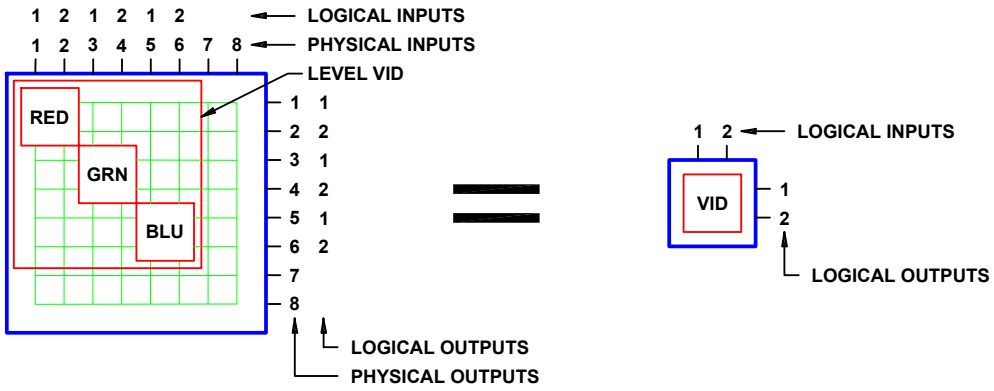


Figure 56. Logical Input

Logical inputs are numbered sequentially, level-by-level, beginning with 1. Input numbers are assigned in the same order as the physical inputs to the component(s) of the level. Since a routing switcher may be configured to have more than one level, it may have more than one logical input designated as number 1. However, within each level, every logical input will have a unique number. Logical outputs are numbered in the same manner. Logical input/output numbering is handled automatically by the control system software as components are configured.

See also: Physical Input.

Logical Output

See: Logical Input.

Logical Switch

The control system software command that switches a logical input to a logical output.

See also: Physical Switch.

Matrix Breakup

The division of a single physical matrix into one or more components.

Matrix breakup allows complex signal types to reside within a single physical matrix. For example, a video matrix is often broken into R, G, and B components.

Matrix breakup is a software function handled by the control system software.

Matrix Space

A three-dimensional mathematical model of the crosspoints in a switching system.

The coordinates of crosspoints in matrix space are given in the form (input,output) on strobe x.

When a switching system is physically made up of only one routing switcher, the crosspoint coordinates are the same as the input and output connector numbers, and the resulting matrix space has only two dimensions. For example, the coordinates of the crosspoint indicated in Figure 57 is (4,2) on strobe 1.

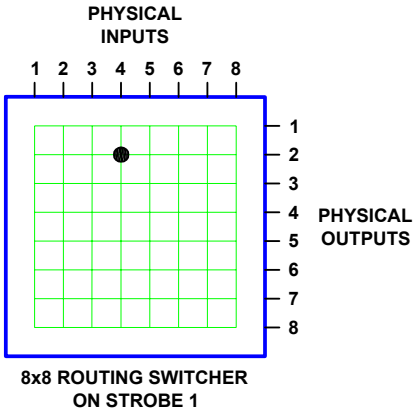


Figure 57. Matrix Space, One Routing Switcher on One Strobe

Two-dimensional matrix space can also be composed of the crosspoints located in multiple routing switchers. The input and output connectors on the additional routing switchers are renumbered as required to ensure that each crosspoint can be identified by a unique (input,output) coordinate. When switching systems are constructed in this manner, matrix space size is no longer constrained by routing switcher size. The switching system shown in Figure 58 consists of four 8x8 routing switchers assigned to the same strobe. The coordinates of the indicated crosspoint are (12,14) on strobe 1.

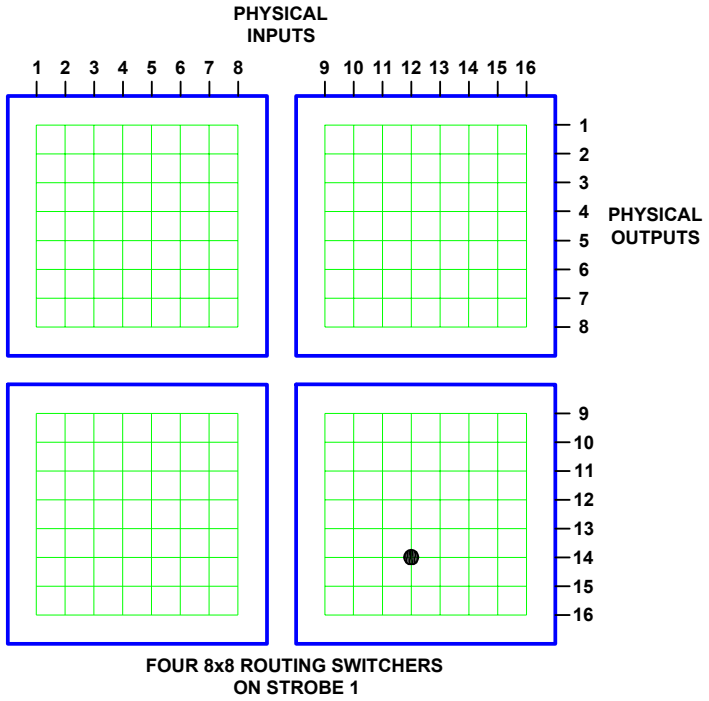


Figure 58. Matrix Space, Four Routing Switchers on One Strobe

Strobe numbers are used to introduce a third dimension into matrix space. Every routing switcher in a switching system is assigned to a strobe. In systems using more than one strobe (and, therefore having three-dimensional matrix space), crosspoint coordinates are given in the form (input,output) on strobe x. In Figure 59, the coordinates of the indicated crosspoint in the left routing switcher are (4,2) on strobe 1. The coordinates of the crosspoint on the right are (4,2) on strobe 2.

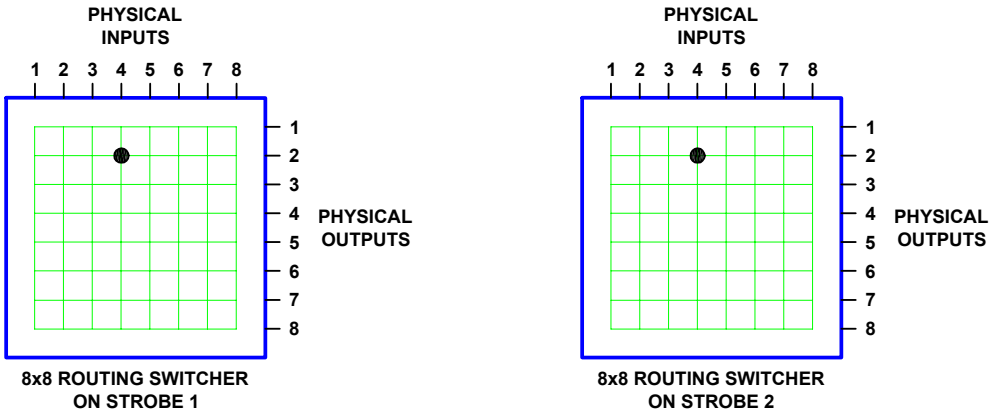


Figure 59. Matrix Space, Two Routing Switchers on Two Strobes

NTSC

National Television Standards Committee. The NTSC was responsible for setting television and video standards in the United States. The NTSC standard for television defines a composite video signal with a refresh rate of 60 half-frames (interlaced) per second. Each frame contains 525 lines and can contain 16 million different colors.

See also: PAL, SECAM.

Output Offset

In matrix space, the amount by which the origin of a component on strobe x, is offset from the origin of strobe x, measured along the output axis.

The coordinates of crosspoints in matrix space are determined by the strobe they reside on, and their input and output numbers. They are given in the form (input,output) on strobe x. The origin of a component (a matrix of crosspoints) is designated by the point that falls nearest the origin of its Strobe (1,1). In Figure 60 below, the 3x4 Component bounded by coordinates (3,2), (5,2), (5,5), and (3,5) has its origin at (3,2).

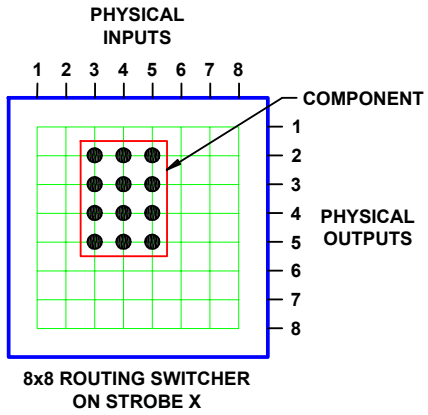


Figure 60. Output Offset, Single Routing Switcher

Output offset is the amount by which the origin of a component is offset from the origin of its strobe, measured along the output axis. A component whose origin coincides with that of its strobe (1,1) will have an output offset of 0. The component shown in Figure 60 has an output offset of 1.

When multiple routing switchers are assigned to the same strobe, the input and output connectors are renumbered to provide a unique coordinate for each crosspoint. Crosspoint coordinates are then determined in the same manner as above. The component shown in Figure 61 has its origin at (12,7) and an output offset of 6.

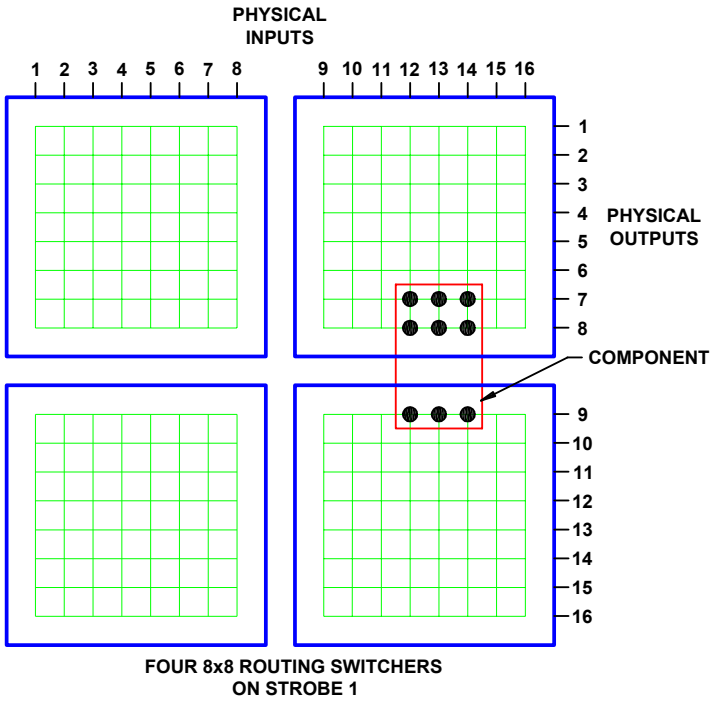


Figure 61. Output Offset, Multiple Routing Switchers

PAL

Phase Alternating Line, the dominant television standard in Europe. The United States uses a different standard, NTSC. Whereas NTSC delivers 525 lines of resolution at 60 half-frames per second, PAL delivers 625 lines at 50 half-frames per second.

See also: NTSC, SECAM.

Panel

A user interface, usually mounted in a standard 19” rack, containing alphanumeric displays, push buttons, LEDs, etc. Sometimes referred to as a control panel.

A panel is used to control a switching system by taking switches, obtaining status, etc.

Panel names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Panel Address

A unique identifier, set by DIP switch on every panel, that allows the system controller to differentiate between panels.

Panel Name

An optional identifier for a control panel.

Individual panels are identified by panel address. Because of this, a panel name is not required when configuring a panel.

Panel names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Password

Each User Account and Configuration may be protected with an eight-character, upper case, alphanumeric password.

PC

Personal computer. Typically used to run control system software such as Win3500Plus.

PESA control system software is designed to operate on any IBM® compatible personal computer (AT® or later) with a Microsoft Windows™ operating system (3.1, 95, 98, or NT).

Physical Input

The electrical signal coming from a device connected to an input connector on a routing switcher.

Physical inputs and outputs are the electrical signals passing through the input and output connectors of a routing switcher. Each connector represents one input or output.

For example, a RGB input signal would represent three physical inputs since it would be connected to three input connectors on the routing switcher.

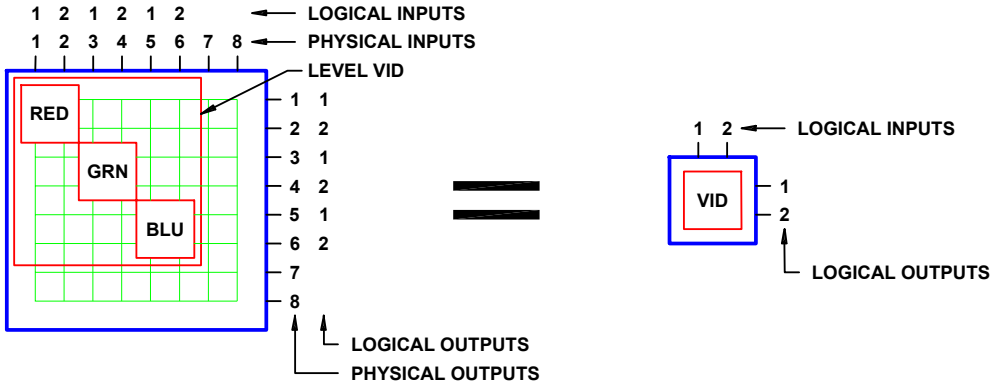


Figure 62. Physical Input

Physical inputs are numbered sequentially beginning with 1, and have the same number as the corresponding input connector on the routing switcher. This includes connectors that have been renumbered with input offset when multiple routing switchers have a common strobe. Physical outputs are numbered in the same manner.

See also: Logical Input.

Physical Switch

The hardware that switches a physical input to a physical output. Sometimes referred to as a crosspoint.

See also: Logical Switch, Crosspoint.

Physical Output

See: Physical Input.

Port

A serial communication bus interface connector on a system controller.

Port names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter. Port names are optional because a port is identified by its address.

PRC Device

A device designed to be compatible with the PESA Routing Control protocol (PRC).

Ocelot, Cougar, Jaguar, Tiger, and Cheetah routing switchers are PRC devices.

See also: RM5 Device.

Protect

A property placed on a destination that prevents all panels and ports from taking a switch on that destination, unless taken from a panel or port that has the same requester code as the panel or port that protected it.

Destination protection may be cleared by any panel or port that has the same requester code and lock priority as the panel or port that protected the destination, that has a higher lock priority, or that has a lock priority of 0 (zero).

See also: Lock, Lock Priority, Requester Code.

Protect Priority

See: Lock Priority.

Protocol

The format to be used when sending data between two devices.

Protocol names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Readback

Information received from a routing switcher reporting which physical input is currently switched to a specified physical output.

To ensure that the configuration in the controller, and the actual state of the physical switches in a routing switcher agree, the routing switcher can be made to read back the status of each physical output. Where the routing switcher reports a different physical input from that expected by the controller, a readback error is declared.

Readback Error

See Readback.

Reentry

An entity that exists as both a source and destination at the same time, whose function is to facilitate switching a single source to multiple destinations, with a single logical switch.

Reentries are virtual entities that exist in the control software only. Their creation and use does not require any physical modification to the switching system hardware.

Example: Assume the existence of source SRC1 and destinations DST1, DST2, and DST3. Reentry REENT1 is created and switched to the three destinations. With a single logical switch, SRC1 can now be switched to REENT1 and the signal will arrive at all three destinations at the same time.

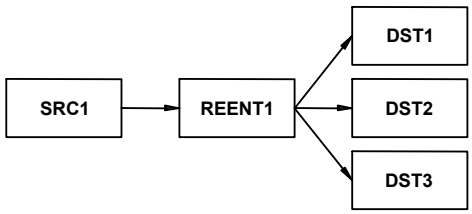


Figure 63. Reentry

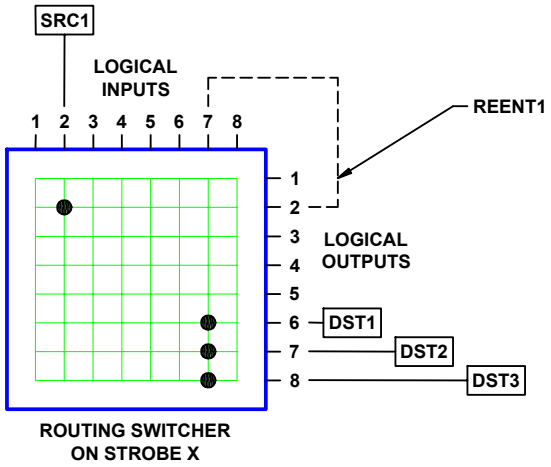


Figure 64. Reentry

A reentry is assigned both a source number and a destination number.

Reentry names may be created by using categories, and:

1. Shall be created using only the following characters:
   - Upper case letters A through Z
   - Lower case letters a through z if enabled in the control system software
   - Numbers 0 through 9
   - The following special characters: space ( ), hyphen-minus (-), exclamation mark (!), ampersand (&), plus sign (+), equals sign (=), commercial at (@), and low line (_)
2. Shall contain a minimum of one, and a maximum of eight characters.
3. Shall not begin or end with a space.
4. Shall be unique in the universe of source, destination, and reentry names.

See also: Category.

Remote Client

A user connected to a networked system controller such as the e-Route.

Remote Client Name

A string of up to sixteen characters consisting of letters, numbers, and some symbols. A Remote Client Name must begin with a letter, and may not contain any spaces.

Symbols Permitted: - _ @ ! & + =

Remote Client Parameters

Reserved for future use.

Remote Client Password

A string of up to eight characters consisting of letters, numbers, and some symbols. A Remote Client Password may begin with either a number or a letter, and may not contain any spaces.

Symbols Permitted: : ; < = > ? @

Remote Modem

An external modem connected to a system controller.

The remote modem must be an external type capable of being configured to automatically answer incoming calls. Because the system controller does not output any modem configuration information, the remote modem must be completely transparent to the controller. The only modems tested by PESA for use as remote modems are the Practical Peripherals PM288MT II and the U.S. Robotics Sportster 28.8 using the following initialization strings:

PM288MT II: AT S0=2 Q1 X4 &C1 &D0 &K3 &S1 &W0 &Y0

Sportster 28.8: AT &F1 S0=2 &H1 &R2 &I0 L2 Q1 &C1 &D0 Y0 &W0

For more information about these modems and their initialization strings, contact Practical Peripherals or U.S. Robotics. Before using any other type of remote modem, please consult with PESA Customer Service.

See also: Local Modem.

Requester Code

A property of panels and ports that allows them to be grouped with other panels or ports for the purpose of establishing lock and protect authority.

Panel requester codes not explicitly defined automatically default to the panel address.

See also Lock, Lock Priority, Protect.

RM5 Device

A device designed to be compatible with the System 5 (RM5) control protocol.

The RM4000, RM5000, and Lynx routing switcher families are RM5 devices.

See also: PRC Device.

Salvo

A group of predefined logical switches taken in the same vertical interval.

Example: Assume the existence of sources CART1 and CART2; and destinations MON1, VTR1, and VTR2, defined on levels AUD and VID.

By pressing a single control panel key, the user desires to take the following switches: audio and video from CART1 to MON1; audio from CART2 and video from CART1 to VTR1; and audio and video from CART2 to VTR2.

Table 23. Salvo

Salvo Entry	Destination	Source	
		Level: AUD	Level: VID
1	MON1	CART1	CART1
2	VTR1	CART2	CART1
3	VTR2	CART2	CART2

Salvo SAL1 is created and will consist of three salvo entries (one salvo entry per destination in the salvo). Each salvo entry is then configured to switch the selected sources on the appropriate levels. Once salvo SAL1 is assigned to a salvo key on the control panel, the user will be able to take all the specified switches with the press of a single key.

All switches in a salvo are taken within the same vertical interval.

Salvo names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Salvo Entry

One or more logical switches assigned to a specific destination that is part of a salvo.

Salvo entry names are the same as the destination they are associated with.

Salvo Include List

A named list of the salvos a specific control panel is authorized to control.

A salvo include list may be shared by multiple panels.

Salvo include list names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Salvo Key

A user configurable control panel key, whose assigned function is used when the panel is in salvo select mode.

Many control panels have user configurable keys. Each key can be assigned two functions, one as a data key and one as a salvo key. When the keys are pressed, the data key functions are used except when the panel is in salvo mode.

When a panel is in salvo select mode, a salvo will be executed immediately when the salvo key is pressed.

Salvo Key List

A named list of the functions assigned to each salvo key on a panel.

Multiple panels may share a salvo key list as long as they are the same type of panel. Different panel types may not use the same salvo key list.

Salvo key list names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

SECAM

Sequential Couleur Avec Memoire, the line sequential color system used in France, Russia, Eastern Europe, and some Middle Eastern countries. Like PAL, SECAM is based on a 50 Hz power system, displaying interlaced lines at 50 fields per second. The color information is transmitted sequentially (R-Y followed by B-Y, etc.) for each line and conveyed by a frequency modulated sub carrier that avoids the distortion arising during NTSC transmission.

See also: NTSC, SECAM.

Serial Port

See: Port.

Shared Input

A logical input that is used by more than one source.

Note that shared outputs are not permitted.

See also: Source Block.

SMPTE

Society of Motion Picture and Television Engineers. A professional organization that recommends standards for the television and film industries.

Soft Destination Key

See: Soft Key.

Soft Key

A special type of data key whose assigned function may be changed locally by a panel user.

Control system software is used to designate a data key as either a soft source key or a soft destination key. The assignment of a specific source or destination to the soft key may then be made with either the control system software, or locally at the panel by using Store Mode.

Soft Source Key

See: Soft Key.

Source

One or more logical inputs (limited to one per level), on one or more levels, that are switched together as a group.

Destination names may be created by using categories, and:

1. Shall be created using only the following characters:
    - Upper case letters A through Z
    - Lower case letters a through z if enabled in the control system software
    - Numbers 0 through 9
    - The following special characters: space ( ), hyphen-minus (-), exclamation mark (!), ampersand (&), plus sign (+), equals sign (=), commercial at (@), and low line (_)
2. Shall contain a minimum of one, and a maximum of eight characters.
3. Shall not begin or end with a space.
4. Shall be unique in the universe of source and reentry names.

See also: Category.

Source Block

A means of ensuring that a particular source will not be switched to a specific.

When configuring a switching system, it may be desirable to use source blocking to restrict the switching of certain logical inputs. This may be done while configuring either sources or destinations.

Since a blocked source may contain a logical input that is shared (used by more than one source), care should be taken to ensure that all sources using the logical input are blocked from the destination to be protected.

Source Group

See: Source.

Source Include List

A named list of the sources a specific control panel is authorized to control.

A source include list may be shared by multiple panels.

Source include list names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

Source Number

A number assigned to each source by the controller and used by CPU Protocol 1.

Source numbers are also assigned to reentries.

Status

A list of all sources on all levels currently switched to a selected destination.

Sometimes also used to refer to the operational state of the control system (lock status, switch status, and panel status).

Status Level

The default level to be used when displaying the status of a destination receiving signals from multiple sources, on a panel in all levels mode (ALL LEVS).

One function of the LCD display on a panel is to show which source is currently switched to a selected destination. This is known as destination status. Although more than one source can be switched to a single destination (limited to one source per level), the status display can only show one source at a time. When the panel is in all levels mode (ALL LEVS), Status Level is used to designate a default level to be used when displaying status. Only the source on this default level will be displayed. On panels that do not have LCD displays, this is indicated by a continuous, bright, pushbutton light.

If one or more other sources are also switched to the destination (on other levels), an octothorp (the "#" symbol) will be appended to the source name. The other source names can be viewed by toggling each level key in turn to show, level-by-level, which source has been switched to the destination. On panels that do not have LCD displays, this is indicated by an alternating bright/dim push button light.

Status Method

One of two possible ways to display status when a panel is in all levels (ALL LEVS) mode and the destination is not defined on the Status Level.

When a panel is in all levels mode (ALL LEVS), the status shown will be the source on the Status Level assigned to that panel. If the destination is not defined on the Status Level, Status Method is used to control the resulting display:

If DEF (Default Method) is selected, NO XXXXX will be displayed where XXXXX is the Status Level assigned to the panel.

If GRP (Group Method) is selected, the controller will examine every level sequentially, starting with the level designated as Level Order 1. The source switched on the first level found where the destination is defined, will be displayed as the destination status.

Stop Bit

In asynchronous communication, a bit that indicates that a byte of data has just been transmitted.

Every byte of data is preceded by a start bit and followed by a stop bit.

Strobe

The third dimension of matrix space.

Every routing switcher in a switching system is assigned a strobe. This is usually accomplished by setting a DIP switch on the back of the routing switcher. Strobes do not have to be unique and, in larger systems, each strobe might be associated with several routing switchers.

In many switching systems, strobes are used to group levels of the same type together. For example, video may be on Strobe 1, audio on Strobe 2, etc.

Sync Reference

A vertical sync signal used to ensure that switching occurs in the vertical interval of a video signal.

Sync Reference names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

See also: Vertical Sync Signal.

System 5 Device

See: RM5 Device.

TIA

Telecommunications Industry Association.

Tieline

A special type of logical switch that allows a logical input on one level to be switched to a logical output on a different level.

Example 1 - Switch a signal from analog camera ANCAM into an analog-to-digital converter (A/D) and then into digital video tape recorder DIGVTR: (Figure 65) Connect a cable between the appropriate output connector of the analog routing switcher and the input of the A/D, and a cable between the output of the A/D and the appropriate input connector on the digital routing switcher. Configure levels ANAVID and DIGVID and tieline TLINE1 to connect them. Configure destination DIGVTR on level DIGVID. Configure source ANCAM on level ANAVID to use tieline TLINE1. ANCAM may now be switched to DIGVTR with a single logical switch even though they are on different levels.

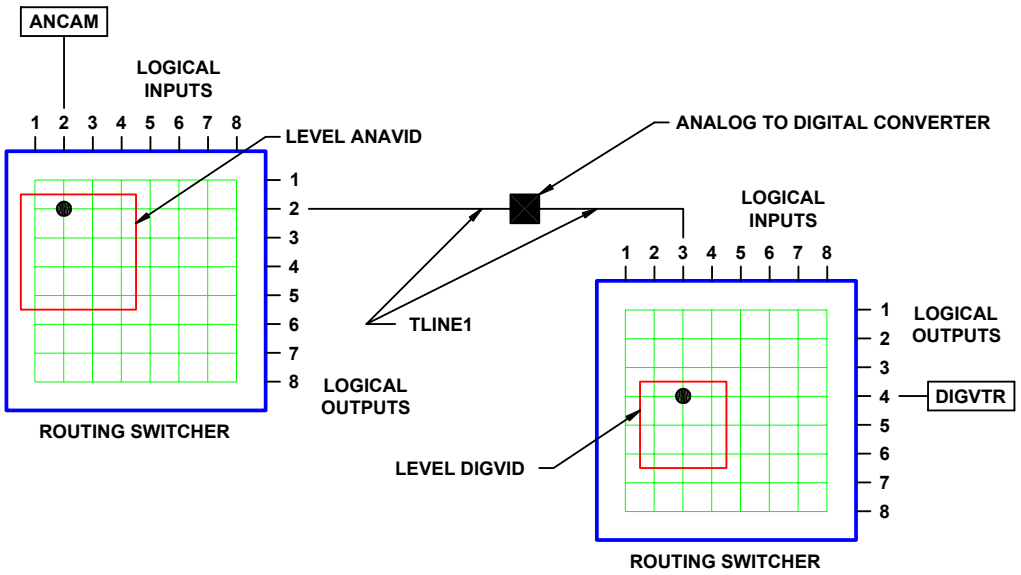


Figure 65. Tieline

Example 2 - Switch a signal from camera CAM1 (connected to a routing switcher in Room A) to video tape recorder VTR1 (connected to a routing switcher in Room B): (Figure 66) Connect a cable between the appropriate output connector of the routing switcher in Room A and the appropriate input connector on the routing switcher in Room B. Create levels VIDA and VIDB and configure a tieline connecting the output of VIDA to the input of VIDB. Define source CAM1 on level VIDA and destination VTR1 on level VIDB. CAM1 may now be switched to VTR1 with a single logical switch even though they (and their respective routing switchers) are located in two separate rooms.

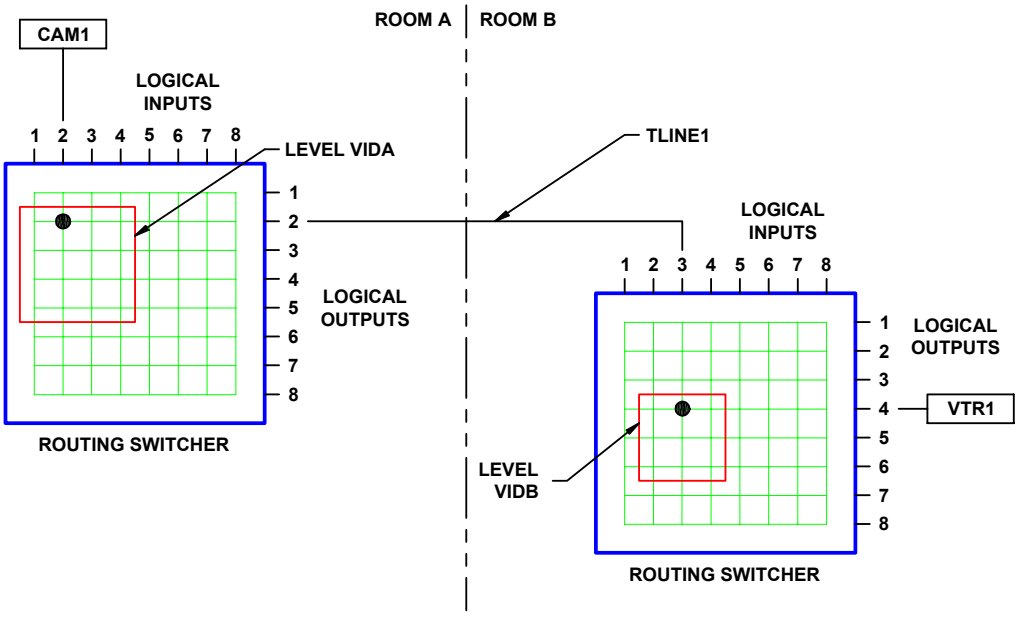


Figure 66. Tieline

Tieline names are one to eight characters in length and are constructed using uppercase letters, numbers, and spaces. The first character must be a letter.

User Account

A set of privileges and an optional user password saved as a user name.

User accounts provide a means of restricting access to certain system functions on a user-by-user basis.

User Name

A string of up to eight characters consisting of upper case letters, numbers, spaces, and some symbols:

Permitted: ! @ # $ % ^ & * _ + - = [ ] \ : " ; ' < > . ? /

Forbidden: { } | , ( )

User Password

A string of up to eight characters consisting of letters, numbers, and spaces. A User Password may begin with either a number or a letter. Leading spaces are discarded.

Vertical Interval

The portion of the video signal in which image information is absent to allow for the video device to prepare for the next frame of information.

Vertical Sync Signal

A short pulse generated at the beginning of each video timing frame that tells the video monitor when to start a new video timing field. For switching purposes, the vertical sync signal may be derived from house sync.

See also: Sync Reference.

Vertical Trigger

See: Vertical Sync Signal.

Video Timing Field

A package of information that contains information required to complete a full scan across a video monitor. There are two types of video fields denoted as odd and even.

Video Timing Frame

A package of information that contains all the information required to draw an image on a video device. Generally considered with respect to NTSC and PAL signals where the information is transmitted over a fixed time frame. A frame consists of two video timing fields denoted odd and even.

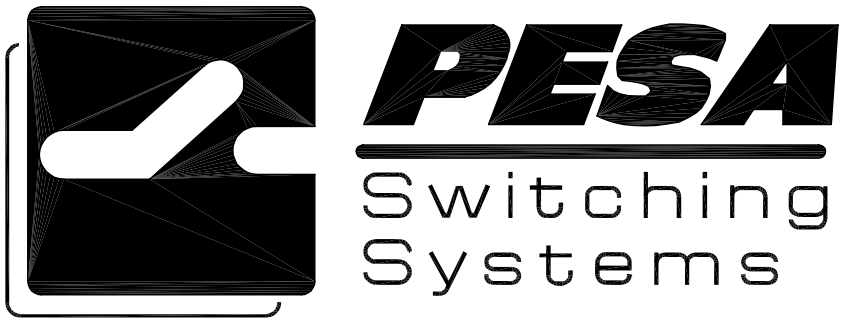
Working Directory

The location on the PC hard drive where control system software such as Win3500Plus is installed.

If the default settings of the Win3500Plus installation program were used, this will be c:\win3500p for 16-bit versions of the Microsoft Windows OS, and c:\program files\win3500p for 32-bit versions. Configurations may not be saved in the working directory or any subdirectory of the working directory.

Revision History

Rev.	Date	Description	By
A	02-28-00	Initial release per ECO-3589.	G. Tarlton
B	11-01-00	Complete revision per ECO-3590 and ECO-CE00022.	G. Tarlton
C	02-28-01	Deleted Printing Specification per ECO CE00160.	G. Tarlton
D	03-20-01	Complete revision. Incorporated RS-422 cable information per ECO CE00034.	D. Buie
E	06-19-01	Changed OS from Windows NT to Linux per ECO CE00145.	G. Tarlton


PESA
Switching
Systems