SIMLATUS

INNOVATION by
Simlatus Corporation

32x32 Analog
Routing System

SIMLATUS

Statement of Warranty

Simlatus Corporation warrants its products for a period of three (3) years from the date of shipment to be free from defects in materials and workmanship and meets applicable published specifications. Equipment which has been operated within its ratings and has not been subjected to mechanical or other abuse or modification by the purchaser, its agents, and/or employees, will, at the option of Simlatus, be replaced or repaired if it is returned, freight prepaid, to Simlatus. Equipment that fails under conditions other than described herein will be repaired at the price of components and labor in affect at the time of repair.

This warranty is in lieu of all other warranties, expressed or implied, with respect to the condition or performance of any Simlatus product, its merchantability or fitness for a particular purpose. Simlatus Corporation is not liable for any consequential damages.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area could cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Important Safeguards and Notices

Information on the following pages provides important safety guidelines for both Operator and Service personnel. Specific warnings and cautions will be found throughout the manual where they apply, but may not appear here. Please read and follow the important safety information, noting especially those instructions related to risk of fire, electric shock or injury to persons.

WARNING

Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Symbols and Their Meaning in This Manual

The lightning flash with arrowhead symbol, within an equilateral triangle, alerts the user to the presence of "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle alerts the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This symbol represents a protective grounding terminal. Such a terminal must be connected to earth ground prior to making any other connections to the equipment.

The fuse symbol indicates that the fuse referenced in text must be replaced with one having the ratings indicated.

Important Warnings and Cautions

Warnings

- Heed all warnings on the unit and in the operating instructions.

- Do not use this product in or near water.

- Disconnect ac power before installing any options.

- This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting the product inputs or outputs.

- Route power cords and other cables so that they are not likely to be damaged.

- Disconnect power before cleaning. Do not use liquid or aerosol cleaners; use only a damp cloth.

- Dangerous voltages exist at several points in this product. To avoid personal injury, do not touch exposed connections and components while power is on.

- Do not wear hand jewelry or watches when troubleshooting high current circuits, such as the power supplies.

- During installation, do not use the door handles or front panels to lift the equipment as they may open abruptly and injure you.

- To avoid fire hazard, use only the specified correct type, voltage and current rating as referenced in the appropriate parts list for this product. Always refer fuse replacements to qualified service personnel.

- To avoid explosion, do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.

- Have qualified personnel perform safety checks after any completed service.

Warnings (continued)

- If equipped with redundant power, this unit has two power cords. To reduce the risk of electrical shock, disconnect both power supply cords before servicing.

- This equipment may employ laser(s). If it does, they comply with the current construction requirements of the code of Federal regulations, title 21, chapter I, subchapter J, sections 1010.2 and 1010.3 and sections 1040.10 and 1040.11.

- Do not attempt to view light output of the laser transmitter, eye damage may result. Always use an optical power meter to verify laser output.

- To prevent injury:

  Never install telephone wiring during a lightning storm.

  Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

  Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

  Use caution when installing or modifying telephone lines.

Cautions

- When installing this equipment, do not attach power cord to building surfaces.

- To prevent damage to equipment when replacing fuses, locate and correct the trouble that caused the fuse to blow before applying power.

- Verify that all power supply lights are off before removing power supply or servicing equipment.

- Use only specified replacement parts.

- Follow static precautions at all times when handling this equipment.

Cautions (continued)

- Leave the back of the frame clear for air exhaust cooling and to allow room for cabling. Slots and openings in the cabinet are provided for ventilation. Do not block them.

- Front door is part of fire enclosure and should be kept closed during normal operation.

- This product should be powered on as described in the manual. To prevent equipment damage select the proper line voltage at the ac input connector as described in the Installation documentation.

- To prevent damage to this equipment read the instructions in this document for proper input voltage range selection.

- To reduce the risk of electric shock, ensure that the two power supply cords are each plugged into a separate branch circuit.

- Circuit boards in this product are densely populated with surface mount and ASIC components. Special tools and techniques are required to safely and effectively troubleshoot and repair modules that use SMT or ASIC components. For this reason, service and repair of RJM products incorporating surface mount technology are supported only on a module exchange basis. Customers should not attempt to troubleshoot or repair modules that contain SMT components. RJM assumes no liability for damage caused by unauthorized repairs. This applies to both in- and out-of-warranty products.

North American Power Supply Cords

This equipment is supplied with molded grounding plug (NEMA 5-15P) at one end and molded grounding connector (IEC 320-C13) at the other end. Conductors are CEE color coded, light blue (neutral), brown (line) and green/yellow (ground).

Operation of this equipment at voltages exceeding 130 VAC will require power supply cords which comply with NEMA configurations.

Note:

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference, in which case the user will be required to correct the interference at his own expense.

SECTION I

INNOVATION by Simlatus

General description

The INNOVATION by Simlatus is a series of small broadcast routing switchers, providing the user with high quality, low cost systems. Each rack-mount frame contains modules that can be installed and removed from the front. This allows for quick and easy exchange of existing modules without having to disconnect and remove the frame itself.

The 32x32 analog video frame requires 2RU. The frame does not require forced air cooling.

Control panels operate either as local or remote panels. The local panel mounts on the front of the video crosspoint frame, and the remote panel mounts in an optional cradle, which contains a panel controller module and a power supply. The remote cradle must be connected to a local AC source for power. A selector switch on the cradle processor/power supply module sets the voltage to either 115 or 230 volts AC. The INNOVATION internal control system is a 10base2 protocol operating between remote panels and the frame over 50Ω coax cable.

An INNOVATION switching system contains one controller module. This module resides in the primary frame and communicates with the local control panel, all remote control panels and any external control protocol. The controller also passes communications inward to the crosspoint module(s). Remote control panels connect to the frame that contains the controller module. The external RS232 control is an open architecture protocol. This external control uses a 9-pin 'D' connector and also connects to the frame containing the controller. A copy of the RS232 protocol is included on page 10.

Each frame has space for four power supplies, two for the main supply and two for the optional redundant unit. Only two supplies are required to operate the frame. The output voltage of each supply is diode OR'd on the crosspoint modules with the same output of the other supply. Each supply has its own AC line connection. If either supply fails or the AC line fails, then the other supply will keep the unit running.

The 32x32 INNOVATION video router frame has two BNC connectors for external looping analog reference input. These BNC connectors are connected in parallel. Internally they connect to a hi-impedance sync separator circuit, which produces a vertical interval switch pulse at the end of the vertical serration period. For non-standard sync reference inputs that do not have serration pulses, the switch pulse time is approximately 100 microseconds after the end of vertical sync. The sync input will accept composite sync, vertical sync or video with sync, at any level between 200mv and 4V p-p (terminated).

1

INNOVATION by Simlatus

Video/Audio Rear Frame Connectors
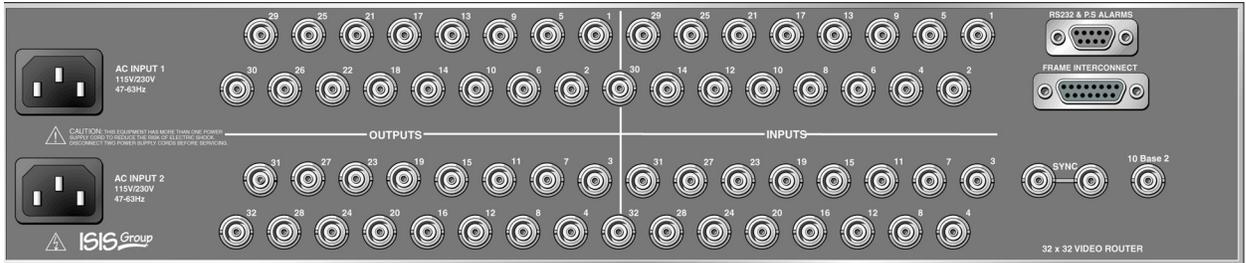
XL3232A   32x32 Video

SECTION II

INNOVATION by Simlatus

Typical Analog Video Specifications

Video Inputs:

Inputs:	32
Impedance:	75Ω terminating
Coupling:	DC
Connector type:	BNC
Return loss:	40dB at 3.58 or 4.43MHz
Level:	1V p-p nominal, 2V p-p maximum

Video outputs:

Number:	32, 1 per bus
Connector type:	BNC
Impedance:	75Ω, source terminated
Return loss:	35dB at 3.58 or 4.43MHz
Level:	1V p-p nominal, 2V p-p maximum

Performance:

Gain:	Unity ±0.1 dB
V.I switching:	Line 6 (NTSC)
Diff Gain:	<0.1% 10 to 90% APL @ 3.58MHz and 4.43MHz
Diff phase:	<0.1º 10 to 90% APL @ 3.58MHz and 4.43MHz
Freq response:	±0.1dB to 5MHz, -2dB bandwidth to 50MHz -6dB bandwidth to 100MHz
Crosstalk isolation:	62dB to 5MHz worst case
Propagation delay:	5ns typical
In/In phase scatter:	±0.5%
In/In gain scatter:	±0.05% ref unity
DC offset:	<25mV
SNR:	-73dB, 5MHz bandwidth, 0.714V p-p video to RMS noise

- Specifications and designs are subject to change without notice.

Electrical and physical specifications

Electrical:

Input power: switch selectable 90-130VAC or 200-265VAC
Frequency: 47 to 63 Hz
Consumption: 32x32 - 50VA max

Compliance: UL60950, EN60950, CAN/CSA22.2 No. 60950,
FCC-CFR47 15B Class B

Physical:

Dimensions: Video - 3.5"h (2RU) x 19"w x 13"d

Net weight:

Frame w/supply (2RU)	≈ 15 lbs	7 kg
Power Supply	≈ 2.2 lbs	.99 kg
1 RU Cradle w/panel	≈ 6 lbs	2.7 kg

Environmental:

Operating temperature: 0 to 45 degrees centigrade
Humidity: 95% non-condensing

- Specifications and design are subject to change without notice.

SECTION III

INNOVATION by Simlatus

Installation

The INNOVATION router switching unit is designed to be mounted in a standard 19" equipment rack. When used in fixed installations, the frame can be mounted without any additional support. When used in mobile units or 'fly-away' cases, the frame should be supported from the bottom or rear. There are no special cooling requirements, though care should be taken to ensure that extremely hot equipment not be installed directly beneath. It is also recommended that, if possible, one rack-unit of space be left above the unit.

Unless specified at the time of order, the INNOVATION is shipped from the factory for nominal 117VAC 60Hz power. The unit comes supplied with a 120V type AC plug. If it is desired to operate at 230VAC 50Hz, then a selector switch must be set on the power supply. The supply should be removed from the frame, the switch set to 230VAC, and then the supply replaced in the frame. NOTE: There are no AC on-off switches on the router.

When operating the switching system with remote control panels, these panels are connected to the crosspoint frame by means of 50Ω coax cable. RG-58 or equivalent is recommended. A 50Ω BNC 'T' connector is supplied with each remote cradle assembly. The last panel in the cable run **MUST** be terminated with an external 50Ω BNC termination. The frame end of the coax run is internally terminated; therefore it is not necessary to provide an external termination at the frame.

NOTE: The BNC 'T' connector should be connected directly to the control panel cradle assembly. Do not attempt to use coax cable between the 'T' connector and the panel. Erratic panel operation could result.

Input and output video and sync reference connections use 75Ω BNC connectors. The video inputs provide for internal 0.1% terminations. Unused inputs and outputs do not require any external termination; however the sync reference should be terminated if not looped to other equipment.

Frame Level Definition

The INNOVATION control system is intended to allow for a maximum of four independent levels of frame control, such as analog video, digital video, analog audio and digital audio. Multiple frames can be connected to the same level, such as individual RBG frames; however they will forever switch together. When it is desired to have breakaway switching, such as video and audio, then each breakaway frame must be assigned to a separate control level.

Simlatus has designed the control system such that the primary video frame, which contains the system controller module, is always dedicated to switching level 1 and a secondary video is set to level 2.

Frame Interconnect

The INNOVATION broadcast routing systems are constructed to switch signals through one or more frames. The individual 32x32 frames can be combined in order to provide a complete video switching system of multiple frames and levels by utilizing a 15-pin cable connected to the Frame Interconnect connectors. The cross-interconnection of certain pins in the connectors will define which control level the additional frames are operating on.

When a video router wishes to control additional video or audio frames without breakaway control, then the entire Frame Interconnect control cable is connected pin for pin. This way, any additional video frames are operating on the same level 1 as the primary video router

In an example of breakaway multilevel router control, when an analog router and a digital video router are being controlled by the same controller module, the primary router which contains the controller module is always located on level 1, and if it is desired to be able to operate the additional router independently, then that video router must be assigned to level 2. This is accomplished by selecting pin 14 of the primary router and connecting it to pin 6 of the additional router as in the chart below.

In the Frame Interconnect cable, all pins are 1-to-1 except for the following:

	Level 1 Video 1	Level 2 Video 2
Control level 1	6	-
Control level 2	14	6
Control level 3	7	-
Control level 4	15	-

Remote Control Panel Setup

Certain local control panels can be operated as remote control panels by utilizing an optional cradle assembly.

When the panel is connected as a local panel it receives power from the crosspoint frame. When it is operating as a remote control panel, it is powered by an internal power supply in the cradle assembly. Should this cradle supply fail, all lights on the panel will be extinguished. Should the power in the crosspoint frame fail, or the coax cable connection is broken, lamps in the control panel will flash to indicate a loss of communication of some type between the panel and the frame. Restoring the communication will allow the panel to automatically resume normal operation.

The change from local to remote is accomplished by removing the panel from the front of the switching frame, plugging the ribbon cable into the connector (P1) on the cradle controller module and mounting the panel in the cradle. In the case of multi-destination routers, the single destination control panel requires some method of identifying to the router the particular destination which that panel will control. This is brought about by setting a series of dipswitches on the controller module. To gain access to the dipswitches, remove the front panel. Unplug the 9 wire ribbon cable and set the panel aside.

There are three pieces of information necessary for the cradle controller module to communicate with the router; one is the 10Base2 Ethernet panel address, another is the router level(s) which the panel will control and the third is the router destination to be controlled by the single bus panel.

Remote Control Panel Address

Dipswitches S1-1 through S1-8 on the cradle controller module have a dual purpose.

When the panel type is 'XY', S1-1 through S1-8 are used to set the panel's network addresses 1-256.

When the panel type is 'single bus', S1-1 through S1-5 serve a dual purpose: S1-1 through S1-5 select the OUTPUT bus of the router that is controlled by that panel (See **Appendix B** for a list of switch settings for destination 1-32). S1-6, S1-7 and S1-8 are the three MSB's of the panel network address. This puts a limit of 8 single bus panels that can be set to the same output. NOTE: Panels will not operate if they have the same 8 bit code.

S2-1 (on the second dipswitch) defines whether the panel is an 'XY' or a 'single bus' panel. When the panel is 'XY', setting the dipswitch to the OFF position will allow the panel to operate. When the panel is a 'single bus', the dipswitch should be set to ON.

S2-3, S2-3 and S2-4 on the second dipswitch are not used.

Panel Function

After the crosspoint frames have been assigned to their specific level or levels (see Frame Address above), the remote control panel must be configured to operate that particular level or levels. This is accomplished by setting S2-5 through S2-8 on the cradle processor module as follows:

Levels controlled	S2-5	S2-6	S2-7	S2-8
Control only Level 1	ON	OFF	OFF	OFF
Control only Level 2	OFF	ON	OFF	OFF
Control only Level 3	OFF	OFF	ON	OFF
Control only Level 4	OFF	OFF	OFF	ON
Control all 4 levels	ON	ON	ON	ON

SECTION IV

INNOVATION by Simlatus

Control Panel Operation

Button Operation by Button 'type'

"OUT" (AKA: DESTINATION): Only applies to 'XY' panels. (Note: The software can view a single non-XY single output panel as an XY panel where the output is selected via a DIP switch). For any unlocked output bus, pressing the button corresponding to that output will cause the previously selected OUT to clear and the new OUT button to be 'selected'. Selected means that the lamp in that OUT switch turns on and the corresponding IN button(s) lights to indicate the current crosspoint status for the selected output. If the selected output is 'locked', the previously selected output is 'remembered' (read on). The locked output button flashes at a rate of 1/2 second on - 1/2 second off to indicate that output is locked.

"IN": Much of the operation of the 'IN' buttons can be inferred from the description of the previous button types described above. Pressing a new selection cause the previous selection to 'de-select' and the newly selected IN button to light.

"LOCK": Only single bus control panels can have a 'LOCK' switch. When a panel with a 'LOCK" switch is powered up the 'LOCK" switch is OFF. If the frame CPU is reset, any 'LOCK' switches that are ON will turn OFF. This button operates as an alternate action latch. If the button is lit – indicating 'LOCK' is on, pressing the button again will turn the light (and LOCK function) off. LOCK operates globally. If two single bus panels are set to the same OUTPUT, their LOCK switches operate in unison.

SECTION V

INNOVATION by Simlatus

Serial Control Protocol

Physical connection
RS-232, 9600 baud, 8 data bits, 1 stop bit, parity = NONE, flow control = NONE.

Protocol Properties
The protocol is an ASCII protocol, which means that commands can be sent to the router from a terminal or keyboard, as well as from an external control or automation system. The protocol is compact and concise. The protocol is human readable and writable.

The Prompt '>'
The control port uses a prompt that makes the terminal screen easier to read (similar to a DOS command line). If the last command was understood and executed properly, the prompt is a greater than '>' symbol. If the last command returned an error, the command prompt will show an 'E', the error code, then the prompt (ex. E06>).

If the last command was a query the prompt will show the response followed by a greater than symbol (ex. 1,2,3>)

Command Format:
Commands are entered using a simple command format.
   • Command Character.
   • Up to 6 numeric arguments separated by commas.
   • Carriage Return <CR> **OR** Command Delimiter <#> **OR** Query Operator "?"

(ex. "X1,2,3<CR>" sets output 1 to input 2 on level 3)

If there are less than 2 arguments, the command does not require a comma. For example "X1<CR>" and "C<CR>" are valid. If a comma is entered after the command character but before any arguments, it will be discarded.

The Query Operator '?'
Adding a question mark to the end of a command will act like entering <CR> except it will process the command as a query and print the data requested before returning a prompt. For example "X1?" returns the status of output 1 on all levels, while "X1,2?" returns the status of output 1 on level 2.

Escape Key [ESC]
The escape key will clear the command buffer and any stacked commands and return to the prompt.

Other Characters
All characters that are not a valid command character, argument value, argument delimiter, command delimiter, query operator, or any other character not specifically listed in this document will be ignored by the command processor.

LEGAL ARGUMENT VALUES:

Argument	Valid Range	Meaning
[out]	1..32	Output number
[in]	1..32	Input number
[lev]	0..4	Level number (0=ALL)
[cfg]	156	Configuration password to configure the router. Factory use only.
[flags1]	Any	8 bit configuration value (like dips) which can be used to configure the system at the factory.
[flags2]	Any	8 bit configuration value (like dips) which can be used to configure the system at the factory.
[out-ct]	1..32	Total number of outputs in the system
[in-ct]	1..32	Total number of inputs in the system
[lev-ct]	1..4	Total number of levels in the system
[ena]	0..1	0=DISABLED 1=ENABLED

ERROR CODES:

Error Response	
E01	Invalid Command
E02	Invalid Input Number
E03	Invalid Output Number
E04	Invalid Level Number
E05	Invalid Configuration Password
E06	......

GENERAL COMMAND DESCRIPTIONS:

Command	Description
X	Crosspoint command for Matrix Routers
Y	Crosspoint command for Single output routers
P	Enables or Disables Diagnostic Printing
C	Configuration command (for factory use)
S	Status command (for factory use)

DETAILED COMMAND DESCRIPTIONS:

X Command (Crosspoint command)

Purpose: The X command is used to make changes to and retrieve status from router crosspoints on routers with more than 1 output. Setting router crosspoints with the X command is simple and direct. Use as many of the optional parameters that are need to achieve the desired result.

X[out]<CR>

An X command with one argument will always act as a query and is identical to X[out]?. This command will return the status of [out] on all levels.

EX: "X1<CR>" may return a response of "1,1,2,2>" (4 level router) indicating that output 1 is set to input 1 on levels 1 & 2, and input 2 on levels 3 & 4.

X[out],[in]<CR>

An X command that has two arguments will switch [out] to [in] on all levels.

EX: "X1,2<CR>" sets output 1 to input 2 on all levels.

X[out],[in],[lev]<CR>

An X command that has three arguments will switch [out] to [in] on [lev].

EX: "X1,2,3<CR>" will switch output 1 to input 2 on level 3.

X[out],[in],[lev-a],[lev-b]<CR>

An X command that has four arguments will switch [out] to [in] on [lev-a] and on [lev-b].

EX: "X1,2,3,4<CR>" will switch output 1 to input 2 on level 3 and level 4.

Up to 4 levels can be listed in an X command for a total of 6 arguments.

EX: "X1,6,1,2,3,4<CR>" will switch output 1 to input 6 on levels 1, 2, 3 and 4. This command is identical to "X1,6<CR>".

X Command Stacking

X commands can be stacked, enabling multiple crosspoints to be changed simultaneously. Entering a command delimeter <#> at the end of a command, rather than <CR> will cause that command to be stacked until the next <CR> is received.

EX: "X1,1#X2,2#X3,3<CR>" will switch output 1 to input 1, output 2 to input 2, and output 3 to input 3 when the <CR> is entered.

X Queries

X queries are similar to X commands but they are terminated with the Query operator "?" and have a maximum of 2 arguments.

X[out]?

Returns the status of [out] on all levels separated by commas and ending with a prompt. The format is [lev-a],[lev-b],[lev-c],[lev-d]>.

EX: "X1?" may return a 2,2,2,2> indicating that output 1 is set to input 2 on all 4 levels.

X[out][lev]?

Returns the status of [out] on [lev] ending with a prompt.
EX: "X1,2?" may return a 3> indicating that output 1 is set to input 3 on level 2.

Y Command (Single output Crosspoint Command)

Purpose: The Y command is used to make changes to and retrieve status from crosspoints on a single output router. Separating this command from the X command will prevent users from having to enter the [out] argument which will always be '1' on single output routers.
Note: The 'Y' command will work on all routers but will only act on output 1.

Setting router crosspoints with the Y command is simple and direct.

Y<CR>

A Y command without an argument will always act as a query. This command will return the status of output 1 on all levels.
EX: "Y<CR>" may return a response of "1,1,2,2>" (4 level router) indicating that output 1 is set to input 1 on levels 1 & 2, and input 2 on levels 3 & 4.

Y[in]<CR>

A Y command that has one argument will switch output 1 to [in] on all levels.
EX: "Y2<CR>" sets output 1 to input 2 on all levels.

Y[in],[lev]<CR>

A Y command that has one argument will switch output 1 to [in] on [lev].
EX: "Y1,2<CR>" sets output 1 to input 1 on level 2.

Y Queries

Y queries are similar to Y commands but they are terminated with the Query operator "?" and have a maximum of 1 argument.

Y?

A Y query with no argument returns the status of output 1 on all levels.
EX: "Y?" may return a 2,2,2,2> indicating that output 1 is set to input 2 on all 4 levels.

Y[lev]?

A Y query with one argument returns the status of output 1 on [lev].
EX: "Y1?" may return a 2> indicating that output 1 is set to input 2 on level 1.

P Command (Print command)

Purpose: The P command enables or disables printing of updates to the serial port. Printing is for diagnostic purposes only.

P[ena]<CR>

The P command will set the diagnostic printing mode to [ena].
EX: "P1<CR>" sets diagnostic printing to ENABLED.

When printing is enabled, any router crosspoint updated from the control panel network will cause the new status of the crosspoint(s) to be printed to the serial port. The format of this printing is as follows.

O[out],[in],[lev],[lev],[lev],[lev]<CR>

EX: "O1,2,2,2,2<CR>" is printed to the serial port when a control panel changes the status of output 1 and the new status of output 1 is input 2 on all levels.

The printing feature, when enabled will affect the responsiveness of the router frame to external stimulus from the control panel network and from the control port. The degree of this penalty will vary depending on the size of the router and traffic on the various frame CPU interfaces. For this reason, printing will always be initialized to DISABLED on start-up and the value will not be stored in NV storage.

C Command (System Configuration command)

Purpose: The C command is used to make changes to and retrieve configuration information from the routing switcher.

This command is intended for use by the factory only and requires a password to change any of the configuration parameters. This will prevent accidental changes to the router's configuration by users. The routers configuration can be displayed without a password.

C<CR>

A C command without an argument will always act as a query. This command will display the router configuration screen on the terminal, followed by a prompt.
EX: "C<CR>".

C[cfg],[out-ct],[in-ct],[lev-ct],[flags-1],[flags-2]<CR>

EX: "C156,16,16,1,0,0<CR>" configures the router for 16 inputs, 16 outputs, 1 level and sets configuration flags 1 & 2 to zero.

A C command must include all 6 arguments, and the correct password, or it will be treated as a query. After each change using the 'C' command the routers new configuration will be printed to the serial port. The new configuration will also be saved to NV storage.

Configuration Screen:
CONFIGURATION
OUTPUTS: 16
INPUTS: 16
LEVELS: 1
FLAGS-1: 0
FLAGS-2: 0

S Command (Status command)

Purpose: The S command is used to print the router status to the serial port for diagnostic purposes. This report is printed in tabulated format and shows the status of each crosspoint and lock. This command does not require a <CR> to complete the command. As soon as the 'S' is entered the report will be printed.

This command is intended for use by the factory only. The processor will not be able to process stimulus from other interfaces from the time this report begins printing to the time this port finishes this report.

S

Just type 'S'

SECTION V
INNOVATION by Simlatus
Diagrams

External Control Connector Pin Assignments

Appendix A: Router Destination Settings

INNOVATION by Simlatus
EXTERNAL CONTROL CONNECTOR
9-PIN 'D'

1	n/c
2	RS-232 Rx
3	RS-232 Tx
4	n/c
5	Ground
6	n/c
7	PS#1 Health (HI = Good)
8	PS#2 Health (HI = Good)
9	n/c

APPENDIX A

ROUTER DESTINATION SETTING

INNOVATION Remote Control Panel

Destination	S1-1	S1-2	S1-3	S1-4	S1-5
1	OFF	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF	OFF
3	OFF	ON	OFF	OFF	OFF
4	ON	ON	OFF	OFF	OFF
5	OFF	OFF	ON	OFF	OFF
6	ON	OFF	ON	OFF	OFF
7	OFF	ON	ON	OFF	OFF
8	ON	ON	ON	OFF	OFF
9	OFF	OFF	OFF	ON	OFF
10	ON	OFF	OFF	ON	OFF
11	OFF	ON	OFF	ON	OFF
12	ON	ON	OFF	ON	OFF
13	OFF	OFF	ON	ON	OFF
14	ON	OFF	ON	ON	OFF
15	OFF	ON	ON	ON	OFF
16	ON	ON	ON	ON	OFF
17	OFF	OFF	OFF	OFF	ON
18	ON	OFF	OFF	OFF	ON
19	OFF	ON	OFF	OFF	ON
20	ON	ON	OFF	OFF	ON
21	OFF	OFF	ON	OFF	ON
22	ON	OFF	ON	OFF	ON
23	OFF	ON	ON	OFF	ON
24	ON	ON	ON	OFF	ON
25	OFF	OFF	OFF	ON	ON
26	ON	OFF	OFF	ON	ON
27	OFF	ON	OFF	ON	ON
28	ON	ON	OFF	ON	ON
29	OFF	OFF	ON	ON	ON
30	ON	OFF	ON	ON	ON
31	OFF	ON	ON	ON	ON
32	ON	ON	ON	ON	ON