Chameleon64i Routing Switchers

Operation and Technical Manual

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IMPORTANT SAFETY INSTRUCTIONS

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "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, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Warning! To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

SECTION 2. INSTALLATION

WARNING! **Take the following precautions when making connections to the Chameleon64i.**

Static Sensitive Connectors! During the installation process and whenever changing cables to the Knox Chameleon64i inputs and outputs, use extreme caution to avoid conducting static electricity to any inputs or outputs including video, audio, and RS232.
DC Offsets Not Allowed! Connect standard video and audio inputs and outputs only. Do not connect input or output signals with a positive or negative dc offset.
Chassis Ground is Earth Ground. Do not connect video or audio cables with induced or direct-connection potential on the shield.

2.1 INTRODUCTION

This section provides the information required for installation of the Chameleon64i Routing Switchers into their operating environment.

2.2 UNPACKING AND INSPECTION

Unpack the Chameleon64i Routing Switcher carefully and verify that the serial number matches the number quoted on the packing list. Before installing it into a system, check the outside of the unit carefully for signs of damage and check that none of the fasteners have come loose.

2.3 INSTALLATION

The Chameleon64i Routing Switcher is designed to be mounted in a standard 19” rack; it is 15.75 inches, or 9 standard rack units, high.

Choose a space in the rack which is convenient for all the cables and mount the unit using standard rack bolts. Connect the power plug to a grounded AC power outlet of the voltage and frequency specified on the identification tag. There is no power switch on the Chameleon64i; it is designed to be ON at all times. (If it is desirable to have the Chameleon64i powered down regularly, connect the power plug to a switchable AC power strip.) The AC Power cord is the disconnect device for the Chameleon64i.

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2.4 VIDEO AND AUDIO CONNECTIONS

Inputs:

The input connectors are BNCs for video and RCAs for unbalanced audio. Input connectors are on the upper 2/3 of the rear panel. Video connectors are on the left and audio connectors are on the right as viewed from the rear of the unit. In most cases the full complement of sixty-four video input connectors and 128 for stereo unbalanced audio are present, even if the crosspoint cards are configured for fewer inputs. Note that the input connectors are on two tiers — 1-32 are on the top, and 33-64 are on the bottom.

Video inputs are automatically terminated in 75 ohms.

For unbalanced monaural audio operation, use only the LEFT channel inputs.

Outputs:

The output connectors are BNCs for video, and RCAs for unbalanced audio. Output connectors are accessible through the bottom third of the rear panel. Each card will have 16 output connectors for video or mono audio, or 32 for stereo unbalanced audio cards. Outputs are numbered from 1 to 16.

Be sure that all video destination devices are terminated at 75 ohms.

For unbalanced stereo audio, the first (upper) connector in each pair is designated as the LEFT output, and the second (lower) as the RIGHT output.

Do not connect a SOURCE signal to any of the OUTPUT connectors.

2.5 RS232 CONNECTIONS

The Chameleon64i Routing Switcher can be controlled by its optional front panel keypad controller, by Knox remote controllers, or by external RS232 devices via the three 9-pin connectors on the rear panel. To use an external driver, connect a source of RS232 serial data to one of the DB9 connectors marked P1 or P2. The Chameleon64i Routing Switchers are wired as data terminals; that is, data *out* of the Chameleon64i is on pin 2, data *in* is on pin 3, and pin 5 is ground (common).

A direct connection (pin-to-pin) from a PC-compatible serial port normally works well; select 9600 baud, 8 bits, no parity, one or two stop bits, and no flow control, for best compatibility.

When a second chassis is to be linked to the first it is customary to connect the controller to one of the top two RS232 input connectors (P1 or P2) on the first chassis, wired normally. Then connect a cable from the bottom input connector (P3) on the first chassis to one of the top two input connectors on the second chassis wired as follows: first-chassis pin 2 to second-chassis pin 3, pin 5 on the first to pin 5 on the second. Similarly, a third chassis would be connected to the bottom connector (P3) of the second chassis.

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2.6 INITIALIZING THE FRONT PANEL CONTROLLER

On power-up, the front-panel LCD display will indicate which Knox routing switcher the Keypad Controller has been set up to operate. The Chameleon 64i uses the Cham64i setting. If the controller is not set for the Cham64i, push the S key, then 93, then ENter. The display will prompt you for the type of routing switcher you are controlling. Enter 6 for the Chameleon64i, then push ENter.

If the front panel controller is being used for the first time, or in the event of a complete memory loss, there will be nonsense characters in the current crosspoint pattern map. To reinitialize these patterns, push the S key, then 94, then ENter. Then enter a 1 to re-initialize, or push 0 to quit.

2.7 INITIALIZING THE CPU MEMORY

If the battery in the CPU has been changed there will be nonsense characters in the twenty stored patterns and in certain other memory areas. To clear the memory, send the command C, followed by Enter to one of the serial ports.

CAUTION -- reinitializing erases all of your stored patterns!

2.8 SETTING A DIFFERENT BAUD RATE

All the communication ports on the ChameleonHB are set at the factory for 9600 baud, no parity, 1 or 2 stop bits. To change a baud rate, send the command U followed by a two-digit number followed by an ENTER. The first digit in the string is the port, 1 to 4, and the second is the speed:

1	1200 baud
2	2400 baud
3	9600 baud
4	19.2Kbaud

Caution! Setting a different baud rate for one of the ports can cause a communications failure in the event another operator is unaware of the change. Use this command with caution.

SECTION 3. OPERATION

3.1 INTRODUCTION

This section explains in detail the operation of the Chameleon64i using either the RS232 port or the optional front panel or remote controller.

3.2 CONNECTIONS AND SETUP

Connect the video, audio, and data to the Chameleon 64i Routing Switchers as described in Section 2, Installation. There is no requirement that all inputs be used or terminated.

If outputs are left over, they may be used like a distribution amplifier to buffer and distribute an input signal. To use extra outputs in this way simply route the input you wish to distribute to as many available outputs as desired.

Outputs should not be looped back to the inputs driving them. If an output is then routed to its input an illegal condition will exist and the output will oscillate at frequencies which could spill over onto other crosspoints.

3.3 OPERATING FROM THE FRONT PANEL CONTROLLER

3.3.1 SELECTING THE MODE

The Keypad Controllers can operate in one of five modes: (1)Full Matrix, (2)Single Output, (3)Strings, 4)Recall, and 5)Sound Control. To select the mode push the Mode key then a number from 1 to 5. The current mode will be indicated in the scrolling display.

Mode 1: Full Matrix—in this mode all the functions of the router switcher may be controlled by the remote; any input may be routed to any output, and the pattern storage, recall, and timed operation can be invoked.

Mode 2: Single Output—in this mode the controller has been assigned to control a single output; pattern storage, recall, and timed operation cannot be invoked in this mode.

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Mode 3: Strings—in this mode the controller sends one of up to 64 preprogrammed strings of ASCII characters to the router. Normally these would be a series of commands to put some of the router outputs in a predetermined position. Strings can be entered from the keypad or from an upstream terminal.

Mode 4: Recall—in this mode the controller can only be used to recall the stored patterns.

Mode 5: Sound Control—in this mode the settings for the optional audio volume, tone, and balance can be changed.

3.3.2 FULL MATRIX MODE

HOW TO ROUTE AUDIO AND VIDEO IN ONE COMMAND:

To route audio and video from the same input, push the B (BOTH) key on the front panel controller, then a one-, two-, or three-digit number for the output you wish to route to, then a one-, two-, or three-digit number for the input you wish to route both audio and video from, then push the ENter key. (The number of digits must be the same for inputs and outputs.)

To route nothing to an output, just enter a 0, 00, or 000 for the input number (the number of zeros must correspond to the number of output digits).

After the first B command has been executed it is not necessary to push the B before the output and inputs numbers on subsequent commands.

Examples: B18[Enter], B0164[Enter]

HOW TO ROUTE VIDEO ALONE:

To route video alone, push the V (VIDEO) key, then a one-, two-, or three-digit number for the output you wish to route to, then a one-, two-, or three-digit number for the input you wish to route to, then push ENter.

After the first V command has been executed it is not necessary to push the V before the output and input numbers on subsequent commands.

Examples: V18[Enter], V0164[Enter]

HOW TO ROUTE AUDIO ALONE:

To route audio alone, push the A (AUDIO) key, then a one-, two-, or three-digit number for the output you wish to route to, then a one-, two-, or three-digit number for the input you wish to route to, then push ENter.

After the first A command has been executed it is not necessary to push the A before the output and input numbers on subsequent commands.

Examples: A18[Enter], A0164[Enter]

HOW TO STORE A CROSSPOINT PATTERN:

The keypad controller also has the ability to store up to twenty complete crosspoint patterns in its local memory. As crosspoints are being made on the front panel controller, or from an external RS232 device, they are stored in the current crosspoint map. That map can be stored at any time in one of the twenty available locations.

Push the S (STORE) key, then a two digit number from 01 to 20, then the ENter key. Note: the pattern previously stored at that location will be over-written.

Examples: S01[Enter], S20[Enter]

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HOW TO RECALL A STORED PATTERN:

To recall and send a stored pattern to the router push the R (RECALL) key, then a two-digit number from 01 to 20 for the pattern to be recalled, then the ENter key. Updating the entire pattern can take up to 30 seconds.

Examples: R01[Enter], R20[Enter]

HOW TO TURN A CROSSPOINT OFF:

Sometimes it is helpful to be able to disconnect a crosspoint altogether; that is, have nothing connected to an output. To turn an output off, type a letter (B for both, A for audio, or V for video), then the output number, then 0, 00, or 000, then Enter (the number of zeros must correspond to the number of output digits). To turn the output back on, route any input to it.

HOW TO SEND A SALVO COMMAND:

Sometimes you want to send the same input to a range of consecutive outputs; this is called a salvo. To send a salvo command, push the SALVO mode button, then select B, V, or A, and enter one to three digits for the first output in the range, then one to three digits for the last output in the range, then enter one to three digits for the input number to route from, and push Enter (all inputs and outputs must have the same number of digits). All the outputs in the range will then be connected to the input named. (Note that the display will show an X for a B, a Y for a V, and a Z for an A—this denotes that the controller is in the Salvo mode.)

Examples: X181[Enter], Y326406[Enter], Z012864[Enter]

HOW TO USE THE QUEUE COMMAND:

Sometimes it is important to have a number of switches made all at the same instant. It is possible using the keypad controller to queue a number of pattern changes ahead of time, then to have them all executed at once. Push the QUEUE button, then enter crosspoint changes as usual, selecting B, V, or A, and entering the output and input numbers followed by the Enter key. (Note that the display will show an E for a B, and F for a V, and a G for an A—this denotes that the controller is in the Queue mode.) Each change will be recorded at the routing switcher but the changes will not take place until the QUEUE button is pushed a second time, or if a change is made at the router's front panel controls.

Examples: E18[Enter], F3208[Enter], G2864[Enter]

HOW TO INTERROGATE A CROSSPOINT CONDITION:

To determine the condition of a particular crosspoint, enter the Display Mode by pushing the DISPLAY key. Then enter a one or two output number, and push ENter. The LCD display will show all the crosspoints two at a time, beginning at that output number. Push the ENter key to see more outputs; the display will return to READY after a few seconds if no more ENter's are pushed. To repeat the last output queried, push the DISPLAY button followed by the Enter button.

HOW TO USE THE TIMED PATTERN RECALL MODE:

The controller can be programmed to recall the crosspoint patterns stored in the router at timed intervals. To turn the timed mode on, push the S key, then enter 90, then push ENter. The display will read TIMED MODE ON. To turn timed mode off, push S, then 91, then ENter. The display will read TIMED MODE OFF, then return to the READY prompt after a few seconds.

To set the time between patterns, push the S key, then enter 92, then ENter. The display will prompt you for a time interval from 1 to 999; enter a one, two, or three digit number and push Enter. Each increment of time interval is about 1 second.

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3.3.3 SINGLE OUTPUT MODE

Setting the Output Station:

In single-output mode, the output being controlled is listed on the scrolling display. To change the output push the S key, then 82, then enter a one to three-digit output number, and push Enter.

How to Route to the Selected Output:

Push the B, V, or A key to choose Both, Video only, or Audio only, then enter a one- or two-digit number representing the input you wish to connect to. After B, V, or A has been pushed it is not necessary to push it again before subsequent commands.

In single output mode, it is possible to use the SALVO and QUEUE buttons to move up or down through the inputs. Push the SALVO button to move to the next higher input (or QUEUE to move to the next lower) and push ENter to execute the command.

3.3.4 STRINGS MODE

In strings mode only pre-programmed strings can be sent from the controller; thus only the numeric keys and the S are used (the SALVO, QUEUE, B, V, A, and R buttons are not used). To send a string, enter the two digit number from 01 to 64 for the string to be sent.

Simple strings may be entered from the keypad; more complex strings must be entered from an upstream terminal. From the keypad, in STRINGS mode, push the S key and a two digit number between 01 and 64. Then enter the command exactly as you wish it to be sent (e.g., S01, then V1608), then push Enter. The carriage return after the command will be appended automatically.

In storing ASCII strings from an upstream terminal, the command $Sxx, where xx is a two-digit number from 01 to 64, must precede the actual string to be stored. Strings may contain any ASCII or HEX characters, but the HEX characters must be represented in brackets; e.g., <0D> for 0Dh (the carriage return function). No carriage return is automatically appended, so each string must end with <0D> if a carriage return is desired. For example, if the terminal sends this sequence of characters:

$S01B0101<0D>B2208<0D>B0401<0D>

string 01 will contain a command to connect output 1 to input 1, output 22 to input 8, and output 4 to input 1 for both video and audio.

To replace a string simply store a new string over the old one.

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3.3.5 RECALL MODE

In recall mode only patterns stored in the router's memory can be recalled (the SALVO, QUEUE, B, V, A, S, and R buttons are not used). To recall a pattern, enter the two-digit number of the pattern. It is not necessary to push Enter.

3.3.6 SOUND CONTROL MODE

In sound control mode the keys on the controller are used to increment or decrement volume, boost or cut bass and treble, adjust left-right balance, turn loudness on or off, and mute or unmute the audio output.

First use the S84 command to select the audio output to be controlled, then operate the sound controls as follows:

KEY	CONTROL
0	volume up
1	volume down
2	bass boost
3	bass cut
4	treble boost
5	treble cut
6	balance right
7	balance left
8	mute on
9	mute off
B	loudness on
V	loudness off
A	clear

3.3.7 SUMMARY OF S-KEY FUNCTIONS

Command	Function	Argument
S80	Store local pattern	01-20
S81	Recall local pattern	01-20
S82	Output number for single station mode	01-64
S83	Set Mode	1=Full Function 2=Single Station 3=Strings 4=Recall 5=Sound Control
S84	Select Output for Sound Control (optional)	01-64
S85	—	
S86	—	
S87	—	
S88	—	
S89	—	
S90	Timed mode on	
S91	Timed mode off	
S92	Timed mode time	1-999
S93	Select router	1=4x4 2=8x8 3=16x16 4=Chameleon128 or other router
S94	Clear patterns	No=0 Yes=1
S95	Salvo Mode on/off	
S96	Display current pattern	Enter to continue
S97	Interrogates for cards	
S98	Lock/unlock output	01-64
S99	Queue mode on/off	

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3.4 OPERATING FROM THE RS232 INPUT

A simple protocol allows all crosspoints to be set through the RS232 ports. There are three independent RS232 inputs connectors (P1, P2, and P3) on the rear of the Chameleon 64i unit; each may be connected to an upstream terminal, computer, or other software-driven RS232 device. If multiple Chameleon 64i chassis are to be interconnected, the RS232 input should go to P1 or P2; P3 will be used to daisy-chain the RS232 signal to the next chassis.

CAUTION—While each port is independent of the other, there is an aggregate maximum data transfer rate that can be accommodated by the Chameleon64i's CPU. Use caution in driving more than one port with heavy traffic at the same time.

A fourth RS232 port is available on the CPU card inside the Chameleon 64i. It is reserved for use by the front panel controller, or for diagnostic use by service personnel.

Note: You may use upper or lower case letters in any command.

ROUTING VIDEO:

To route video, send a four or six-byte command in the form:

Vxy(ENTER),
Vxxyy(ENTER),

where xx is an output number (01 to 64) and yy is an input number (01-64). The number of digits in the input number must match the number of digits in the output number.

Examples: V16[Enter], V1802[Enter]

ROUTING AUDIO:

To route audio, send a four or six-byte command in the form:

Axy(ENTER),
Axxyy(ENTER),

where xx is an output number (01 to 64) and yy is an input number (01-64). The number of digits in the input number must match the number of digits in the output number.

Examples: A16[Enter], A1802[Enter]

ROUTING VIDEO AND AUDIO TOGETHER:

To route both audio and video from the same input, send a four or six-byte command in the form:

Bxy(ENTER),
Bxxyy(ENTER),

where xx is an output number (01 to 64) and yy is an input number (01-64). The number of digits in the input number must match the number of digits in the output number

Examples: B16[Enter], B1802[Enter]

To route both audio and video from different inputs, send a five or eight-byte command in the form:

Qxyz(ENTER),
Qxxyyzz(ENTER),

where xx is an output number (1 to 128), yy is a video input number (1-64), and zz is an audio input number (1 to 64). The number of digits in the input number must match the number of digits in the output number.

Examples: J161[Enter], J183202[Enter]

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TURNING AN OUTPUT OFF:

Sometimes it is helpful to be able to disconnect a crosspoint altogether; that is, have nothing connected to an output. To turn an output off, send a letter (B for both, A for audio, or V for video), then the output number, then 0, or 00 (to match the number of digits in the output number) then ENter. To turn the output back on, route any input to it.

Examples: B10[Enter], V1800[Enter]

HOW TO SEND A SALVO COMMAND:

Sometimes you want to send the same input to a range of consecutive outputs; this is called a salvo. To send a salvo command, send an X, Y, or Z (X for BOTH, Y for VIDEO, or Z for AUDIO), and enter one or two digits for the first output in the range, then one or two digits for the last output in the range, then enter one or two digits for the input number to route from (the number of digits in each output and input must match), and ENter. All the outputs in the range will then be connected to the input named.

Examples: X161[Enter], Y183202[Enter]

HOW TO USE THE QUEUE COMMAND:

Sometimes it is important to have a number of switches made all at the same instant. It is possible to queue a number of pattern changes ahead of time, then to have them all executed at once. Send the crosspoints as usual, but substitute an E, F, or G in place of the B, V, or A, respectively. The new crosspoints will be stored and ready to be executed. To execute the commands all at once, send a final command in the regular form using B, V, or A, or just send the command,

EE(ENTER)

all the commands will be executed at once.

Examples: E11[Enter]E0216[Enter]EE[Enter]
F18[Enter]G32[Enter]B22[Enter]
E0512[Enter]E61[Enter]E0728[Enter]EE[Enter]

HOW TO CONTROL THE SOUND:

Volume, tone, and balance (VTB) can be controlled via the RS232 control inputs. All VTB commands are preceded by a $;
xx=an output number from 01-64 (or for trim, an input number from 01-64)

To control volume send a command of the form: $Vxx+, $Vxx-, or $Vxxyy where xx is an output number and yy is a number from 00-63; 04 is the default value for 1:1 audio in to audio out.

To control bass send a command of the form: $Bxx+, $Bxx-, or $Bxxyy, as above, but yy ranges from -7 to +7 (cut or boost); 0 is the default (neutral) value.

To control treble send a command of the form: $Txx+, $Txx-, or $Txxyy, but yy ranges from -7 to +7, as above; 0 is the default (neutral) value.

To control balance between the left and right channels send a command of the form: $Sxx+, $Sxx-, or $Sxx0, where 0 resets balance to equal (+ decreases left channel; - decreases right) The range of the balance is from -32 to +32; 0 is the default value.

To mute the sound output send a command of the form: $Mxx1 is mute on, $Mxx0 is mute off (default is off).

To select loudness on or off: $Lxx1 is loudness on; $Lxx0 is loudness off (default is off).

To make a fade from the current value to zero or from zero back to the preselected full volume send a command of the form: $Fxxyy0 is fade down to 0; $Fxxyy1 is fade up to previous volume (xx is output number, yy is time to fade from 01-99, where 99 is the longest fade.

To trim inputs send a command of the form: $Ixx+, $Ixx-, or $Ixx0, where 0 is no trim; the range is from -3 to +3, default trim is 0.

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Additional sound control commands:

$CI clears all input trims
$CxxI clears input trim for input xx
$C sets all VTB for all outputs to default values
$Cxx sets all VTB for output xx to default values

$Dxx dumps VTB values for output xx
$DI dumps table of all input trim values

Syntax notes:

Any command that allows a + or - also allows a number in front of the + or - to indicate multiple steps; so $vxx+ increases volume by one step; $vxx3+ increases it by three steps

Volume, bass and treble allow an absolute number to be entered, but balance and trim allow only steps to be specified)

HOW TO STORE A CROSSPOINT PATTERN:

To store the current pattern into the router's pattern memory, send an S, then a two-digit number from 01 to 20, then an ENter. The current pattern will then be stored in the memory position you specified. Note: the pattern previously stored at that location will be over-written.

Examples: S01[Enter], S20[Enter]

HOW TO RECALL A STORED PATTERN:

To recall one of the stored patterns from the router's memory, send an R, then a two digit number from 01 to 20, then an ENter. The entire pattern will be updated all at once.

Examples: R01[Enter], R20[Enter]

HOW TO INTERROGATE A CROSSPOINT CONDITION:

To determine the condition of a particular crosspoint or crosspoints, send a D, then a two- or four-digit number indicating the first and last crosspoint to be displayed, then push Enter.

Sending just an M followed by an Enter will display the entire crosspoint map.

Examples: D48[Enter], D0820[Enter], M[Enter]

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HOW TO USE THE TIMED PATTERN RECALL MODE:

The controller can be programmed to recall the twenty crosspoint patterns stored in the router one at a time, at timed intervals. To turn the timed mode on, send a T followed by a one-, two, or three-digit number corresponding to the number of seconds between patterns, followed by an ENter.

To stop the timed mode, send an N and Enter.

Examples: T2[Enter], T20[Enter], T999[Enter]

ANSWERBACK:

A correctly formed and executed command will elicit the answerback, DONE. An incorrectly formed or un-executable command will elicit the answerback, ERROR.

INTERROGATING:

To initiate the signon message (which contains information about the revision level of the software), send an I followed by an Enter.

To interrogate the Chameleon as to the active cards send the command W followed by an Enter. Each audio and video card present will respond in turn.

HELP COMMAND:

The Chameleon64i CPU responds to the command:

H(ENTER)

by listing the strings available in the command protocol.

The typical terminal readout is:

KNOX Chameleon64i COMMANDS (FOLLOWED BY <CR>:

Bxy/Bxxyy/Bxxxyyy	Both, xx=output yy=input
Vxy/Vxxyy/Vxxxyyy	Video, xx=output yy=input
Axy/Axxyy/Axxxyyy	Audio, xx=output yy=input
Exy/Exxyy/Exxxyyy	Both, delayed xx=output yy=input yy=audio in
Fxy/Fxxyy/Fxxxyyyzzz	Video, delayed xx=output yy=input
Gxy/Gxxyy/Gxxxyyy	Audio, delayed xx=output yy=input
Jxy/Jxxyy/Jxxxyyy	Both, conference xx=out yy=input
Kxy/Kxxyy/Kxxxyyy	Video, conference xx=out yy=input
Lxy/Lxxyy/Lxxxyyy	Audio, conference xx=out yy=input
Xxyz/Xxxyyzz/Xxxxyyyzzz	Both, salvo xx=1st output yy=last output zz=input
Yxyz/Yxxyyzz/Yxxxyyyzzz	Video, salvo xx=1st output yy=last output zz=input
Zxyz/Zxxyyzz/Zxxxyyyzzz	Audio, salvo xx=1st output yy=last output zz=input
Dxy/Dxxyy/Dxxxyyy	Dump configuration output xx to yy
Qxyz/Qxxyyzz/Qxxxyyyzzz	Both, xx=output yy=video in zz=audio in
M	Dump all configuration
W	List cards in chassis
Sn/Snn/Snnn	Store existing config into map nn (1 - 10)
Rn/Rnn/Rnnn	Restore map nn into existing config
Ts/Tss/Tsss	Timed sequence, from map 1 every ss sec
N	Stop timed sequence
I	Send signon message
C	Clears arrays
Ups	Set port (p=1-4) speed (1=1.2 2=2.4 3=9.6 4=19.2)
H	Help (see *Help Command Table* next page)

The command:

$H(ENTER)

lists the strings available to control volume, tone, and balance. The typical terminal readout is:

VTB COMMANDS (FOLLOWED BY <CR>):

xx is output number, yy is input number, zz is a value:

$Vxxzz, $Vxx+, $Vxx-	Volume (zz=0-63, nom 4)
$Mxx1, $Mxx0	Mute or unmute
$Lxx1, $Lxx0	Loudness on/off
$Bxxzz, $Bxx+, $Bxx-	Bass boost/trim (zz=+7 to -7)
$Txxzz, $Txx+, $Txx-	Treble boost/trim (zz=+7 to -7)
$Sxx+, $Sxx-, $Sxx0	Balance
$Iyy0, $Iyy+, $Iyy-	Input trim
$Dxx	Dump output
$DI	Dump Trim
$C, $Cxx, $CI, $CIxx	Clear
$Fxxzz0, $Fxxzz1	Fade in zz seconds
$H	Help for VTB commands

3.5 OPERATING FROM AN UPSTREAM DEVICE VIA THE CONTROLLER

Generally, commands from an upstream controller or terminal device can be passed through the Front Panel Keypad Controller or the Remote Keypad Controller to the router, and generally, all responses from the routing switcher to the controller will be echoed upstream to the terminal device.

However, all commands to the controller which are preceded by a $ are blocked. The S-key functions listed below can be activated from a terminal by adding the $ in front of the command. The command arguments must be a part of the string from the terminal (e.g., $S8012 stores the current pattern into local pattern 12).

Command	Function	Argument
$S80	Store local pattern	01-20
$S81	Recall local pattern	01-20
$S82	Output number for single station mode	01-64
$S83	Set Mode	1=Full Function 2=Single Station 3=Strings 4=Recall 5=Sound Control
$S84	Select Audio Output	01-64
$S90	Timed mode on	
$S91	Timed mode off	
$S92	Timed mode time	1-999
$S93	Select router	1=4x4 2=8x8 3=16x16 4=Chameleon128 or other router 5=Chameleon64i
$S94	Clear patterns	No=0 Yes=1
$S95	Salvo Mode on/off	
$S96	Display current pattern	Enter to continue
$S97	Interrogates for cards	
$S98	Lock/unlock output	01-64
$S99	Queue mode on/off	

KNOX VIDEO
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SECTION 4. MAINTENANCE

4.1 INTRODUCTION

The Chameleon64i uses a combination of passive air flow (convection) and a low-velocity fan to keep its dual front panel-mounted power supplies within a comfortable operating temperature range. It is important to check for and correct against an accumulation of dust at least annually, or more often in a dusty environment.

The CPU card and the optional front panel controller both have battery backed-up memory for their crosspoint pattern storage and other non-volatile functions. It is important to check the batteries annually and replace them when necessary. For each board, the battery is a DL1220 type (one-half inch in diameter, 1/10 inch thick) with a 3.2 volt rating. To avoid memory loss, replace the battery when the measured voltage falls below 2.8 volts. Be sure the replacement battery is installed with the + side visible.

No other routine maintenance is required in the Chameleon 64i.

4.2 SWITCH/JUMPER OPTIONS

Each crosspoint card has 8 jumper positions labeled J2-J3 for configuring the cards.

Jumper positions 1 (far left) and 8 (far right) are used to identify whether a card is a video or audio card:

Position 1: ON=VIDEO OFF=AUDIO
Position 8: ON=AUDIO OFF=VIDEO

Jumper position 2 is used to identify whether the sound control option has been installed. ON=VT SOUND CONTROL OFF=NO SOUND CONTROL

Jumper positions 3 through 7 are used to modify the card's apparent position in the chassis to allow simultaneous switching of multiple cards, as with stereo

audio or component video. With these jumper positions OFF Each board has an address from 0 to 15; adding the jumpers modifies the card address as follows:

Position 3: ON=subtract 2 from the real address
Position 4: ON=subtract 4 from the real address
Position 5: ON=subtract 8 from the real address

For example, to have a card in the 9th slot (outputs 65-96) switch as though it is in the first slot (outputs 1-32), add jumper 5. To have a card in the 15th slot switch as though it is in the 9th slot, add jumpers 3 and 4.