

SERIAL COMMAND SET

This section discusses the SynchroMaster 450 serial control commands. The command set provides access to all of the unit's functions. Most users will find the front panel controls sufficient for operation of the unit. However, some will require more advanced operation, or desire to control the product using an external control device, and wish to use the serial control option.

A software control program, called the Virtual Control Panel, is also available from RGB Spectrum. See "Control Software For Windows" on page 24 for more information on this application.

GENERAL

The command set is made up of ASCII characters. Commands are case insensitive and each has both a long and a short form. The short form is indicated by the capitalized letters in the long form of the command.

Example—the command "**BAUDrate**" can be entered in the following ways:

```
>baudrate      >baud
>BAUDRATE     >BAUD
```

Most commands may be used to set a variable (called an "argument"), or to get the value of a variable. The format <command> <value> sets "command" to a "value", whereas <command> alone returns the command's value. Arguments appearing in square brackets "[]" are optional.

Example—set BRiGhtness to 125 and then check the current value for CONTRast:

```
>bri 125      sets the value
>cont        checks the value
```

would return:

```
>contrast 95  system reports the value
```

Illegal commands or arguments generate error messages and correct usage instructions.



To execute serial instructions, each command line must be followed by a carriage return <CR>.

CONTROL SOFTWARE FOR WINDOWS

RGB Spectrum offers a software control program which runs under Microsoft Windows 95, 98, and NT. The SynchroMaster 450 Virtual Control Panel (VCP) is a graphical user interface to RS-232 serial control.

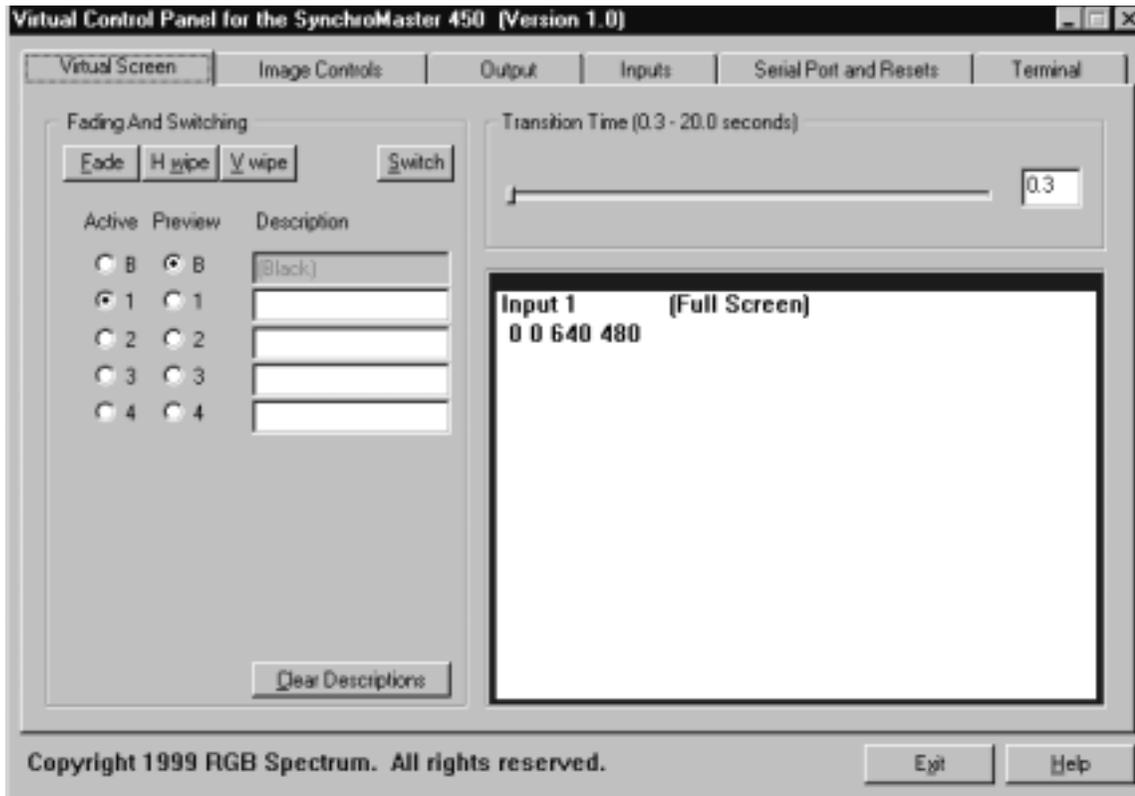


FIGURE 5. VCP Software for the SynchroMaster 450

With the VCP, you have push button control over all functions of the SynchroMaster 450. The VCP requires the same serial connections as described in *Appendix A*.

The VCP comes with an on-line help feature, so the application is not covered in this User Manual. If you have purchased the VCP control software, please refer to the on-line help, accessible on each section of the software via the "Help" button located in the bottom-right corner of the screen.

COMMAND SET SUMMARY

This section provides a simple alphabetical listing of the SynchroMaster 450's RS-232 Command Set. Both forms of the command (long and short) are listed here, as well as their associated parameters.

For a complete description of the commands and their parameters, refer to the detailed sections beginning on page 28.

INPUT COMMANDS

Command	Arguments	Abbreviation
INput	<input# ALL>	IN
INput	<input#> <AUTO LOCK DEBUG>	IN
INputDELeTe	<1...50>	INDEL
INputFormat	<input#>	INF
INputInteractive	<input#>	INI
INputLIST	[<1...50>] [<1...50>] [<active>]	INLIST
INputLOAD	<input#> <1...50>	INLOAD
INputName	<input#> <name> <i>(up to 17 characters; no spaces)</i>	INN
INputSave	<input#> <1...50>	INS
INputTiming	<HFP> <HS> <HBP> <HACT> <VFP> <VS> <VBP> <VACT>	INT
INputTYPE	<input#> <COMPOSITE COMPONENT SVIDEO RGB>	INTYPE
LoadInputList	<1...50> <name> <HFP> <HS> <HBP> <HACT> <VFP> <VS> <VBP> <VACT> <HFREQ> <SYNC> <HPOL> <VPOL> <IL>	LIL

HOST COMMANDS

Command	Arguments	Abbreviation
ClearHostList	(none)	CHL
HOST	(none)	HOST
HostDELeTe	<1...10>	HDEL
HostInteractive	(none)	HI
HostLIST	[<1...27>] [<1...27>]	HLIST

HOST COMMANDS

Command	Arguments	Abbreviation
HostLOAD	<1...27>	HLOAD
HostName	<name> (up to 17 characters; no spaces)	HN
HostSave	<1...10>	HS
HostTiming	<HFP> <HS> <HBP> <HACT> <VFP> <VS> <VBP> <VACT> [<HFREQ> <SYNC> <HPOL> <VPOL> <IL>]	HT
OPTimize	<ON OFF>	OPT

SWITCHING & FADING

Command	Arguments	Abbreviation
FADE		FADE
HWipe		HW
LiveINput	<1 2 3 4 Black>	LIN
ManualControl	<ON OFF>	MC
ManualSelect	<fade hwipe vwipe>	MS
ManualValue	<0...255>	MV
PreviewINput	<1 2 3 4 Black>	PIN
SWItch		SWI
TransitionTime	<0.1...20.0>	TT
VWipe		VW

IMAGE CONTROLS

Command	Arguments	Abbreviation
BRiight	<input# ALL> <-500...500>	BRI
CONTrast	<input# ALL> <0...200>	CONT
DoubleBuffer	<input#> <ON OFF>	DB
FreeZe	<input#> <ON OFF>	FZ
GAMma	<input# ALL> <0.5...2.0>	GAM
HUE	<input#> <-180...180> <i>video inputs only</i>	HUE
OVERSCAN	<input#> <ON OFF>	OVERSCAN
PAN	<input#>	PAN
RSR	<input#>	RSR

IMAGE CONTROLS

Command	Arguments	Abbreviation
SATuration	<input#> <0...200> <i>video inputs only</i>	SAT
SHARPNess	<input#> <0 1 2 3> <i>video inputs only</i>	SHARP
WSR	<input#> <x> <y> <width> <height>	WSR
ZooM	<input#>	ZM

MISCELLANEOUS

Command	Arguments	Abbreviation
AUTOSAVE	<ON OFF>	AUTOSAVE
DEMO	(none)	DEMO
FrontPanel	<ON OFF>	FP
Help	[<command_name>]	H
ID	(none)	ID
RestoreFactoryDefaults	(none)	RFD
SAVECONFIGURATION	(none)	SAVECONFIGURATION
STATus	(none)	STAT
TestPattern	<ON OFF>	TP
VERSION	(none)	VERSION

SERIAL PORT FUNCTIONS

Command	Arguments	Abbreviation
BAUDrate	<1200 2400 9600 19200 38400 57600 115200>	BAUD
ECHO	<ON OFF>	ECHO

INPUT COMMANDS

The Input Commands, with the exception of **INputTYPE** and **INputFormat** only address RGB inputs.

INput <input#|ALL>

Displays information on the input specified—or all inputs with ALL argument—including **INputTiming** information, **INputName**, and lock status.

A sample response to the **INput** command:

```
MODE auto
AUTOSYNC_STATE locked
NUM NAME   HFP   HS HBP  HACT VFP  VS  VBP VACT  HFREQ SYNCHPOLVPOL
IL
2 640x480_PC 62    64 96  640   3   3  41 478  35026 5   0   1   0
```

The mode state “auto” indicates that autosync is turned on for that RGB channel. The mode state “disable” indicates that autosync is turned off. The autosync state “locked” confirms the SynchroMaster has a valid input signal on that channel.

For details on the definition and range of each timing parameter, see the **INputTiming** command on page 30.

INput <input#> <AUTO|LOCK|DEBUG>

Sets the input mode for the specified input. <AUTO> engages autosync circuitry. <LOCK> turns autosync circuitry off. <DEBUG> provides information on input status and reports changes to measured parameters.

INputDElete <1...50>

Deletes the specified saved input from the Input List. See **INputLIST** on page 29.

INputInteractive <input#>

This command initiates the input interactive mode to visually adjust timing parameters of the specified input. This adjustment utility can only be activated for the inputs assigned to either Program or Preview display. See **LiveINput** <1|2|3|4|Black> on page 35 and **PreviewINput** <1|2|3|4|Black> on page 36.

After issuing the **INputInteractive** command, a white box frame and cross hair appear over the full screen input. Use the keyboard controls—as shown in the steps below—to fit the input image precisely within the box frame.

INputSave <input#> <1...50>

Saves the specified input to the selected entry in the Input List. Also saves video image parameters of brightness, contrast, and gamma. These settings are recalled along with the timing values whenever the signal is reapplied to the SynchroMaster.

Use the **INputSave** command after you have used either the **INputInteractive** or **INputTiming** command to properly adjust the video timing and image parameters to your satisfaction. To assign a name to the input, use the **INputName** command prior to issuing the **INputSave** command.

INputTiming <HFP> <HS> <HBP> <HACT> <VFP> <VS> <VBP> <VACT>

Sets the timing of the selected input. Note: The vertical total cannot be changed from the measured value; that is, the total of <VFP> + <VS> + <VBP> + <VACT> must remain constant.

The **INputTiming** command can be used with all eight arguments, or with any one of the horizontal parameters. That is, to change only the horizontal front porch (hfp), you send the command **int hfp <0...640>**.

The definition and range of each argument is:

HFP	•horizontal front porch	•(0...640)	•pixels
HS	•horizontal sync	•(16...640)	•pixels
HBP	•horizontal back porch	•(0...640)	•pixels
HACT	•horizontal active	•(16...1280)	•pixels
VFP	•vertical front porch	•(0...512)	•lines
VS	•vertical sync	•(2...32)	•lines
VBP	•vertical back porch	•(0...512)	•lines
VACT	•vertical active	•(12...1024)	•lines
HFREQ	•horizontal frequency in Hz	•(15...90)	•kHz
SYNC	•sync format	•3, 4, or 5	•wires
HPOL	•horizontal sync polarity	•(1/0)	
VPOL	•vertical sync polarity	•(1/0)	
IL	•interlaced/non-interlaced	•(1/0)	

INputTYPE <input#> <RGB | COMPOSITE | COMPONENT | SVIDEO>

The **INputTYPE** command is used for input channels with video input option boards. The command selects between the four possible input types of such a channel. Only one input type per channel can be used at a time.

The argument <input#> can only be “1” or “3”, as these are the only input channels that support the option board.

Factory default: RGB

INputFormat <input#>

INputFormat is a read-only command for checking on the video format of the current video input selection. This command can only be used when **INputTYPE** is set to either Composite, Component or SVideo. The response to the command will be either “NTSC” or “PAL”.

LoadInputList <1...50> <name> <HFP> <HS> <HBP> <HACT> <VFP> <VS> <VBP> <VACT> <HFREQ> <SYNC> <HPOL> <VPOL> <IL>

The **LoadInputList** command lets you define input timing strings without requiring the input signal to be present. For example, if one SynchroMaster system has an Input List which must be copied to a second unit, the **LoadInputList** command could be used to enter in the list entries one by one.

The first argument, <1...50>, indicates the Input List entry number to which to store the timing string. The second argument, <name>, gives a customized name to the signal. The next eight arguments, <HFP> <HS> <HBP> <HACT> <VFP> <VS> <VBP> <VACT>, define the signal’s timing. The next five, <HFREQ> <SYNC> <HPOL> <VPOL> <IL>, define the horizontal frequency, sync format and polarity, and interlace status. All 15 arguments must be supplied for the command to be successful.

HOST COMMANDS

The Host commands control the output of the SynchroMaster. They define the output or “host” timing and sync format, and save, load, and delete timings to the Host List.

ClearHostList

Clears the Host List of all user-defined hosts.

HOST

A query command which returns information on the selected host timing.

HostDElete <1...10>

Deletes the specified, user-defined host.

HostInteractive

Enters host interactive mode. This is an adjustment mode for changing the **HostTiming** values to better suit your display device. Once in the interactive mode, a white box and cross hair appear on the Program output display. The Preview output remains unchanged during the host interactive mode.

1. Adjust the lower-right corner of your display

On the screen should be a white box and cross hair. Starting with the lower-right corner of the box, use the controls to position and size the image so that it fits and fills the screen to your satisfaction.

I = move up
J = move left **L** = move right
M = move down

2 Adjust the upper-left corner of your output

With the lower-right corner properly adjusted, address the upper-left corner next. Use the controls to position and size the white box frame.

i = move up
j = move left **l** = move right
m = move down

3 Exit the utility

With your image properly adjusted, quit the utility by typing “q”.

q = quit

4 Save your changes

After you have adjusted the input to your satisfaction, use the **HostName** command to name your input source, and the **HostSave** command to store the parameters into the Host List.

HostLIST [<1...61>] [<1...61>]

Displays the entries in the Host List (Figure 6). Without arguments, the command returns the entire list. With one argument, it returns information on the specified Host List entry. With both arguments, it returns the portion of the Host List specified by the arguments.

The first 10 entries are user-defined. That is, these slots are reserved for host timing strings the user defines with the **HostTiming** and/or **HostInteractive** commands, and saves with the **HostSave** command.

Entries 11 through 61 are pre-defined and reside in the SynchroMaster’s internal memory. These entries can not be cleared or modified in any way. Entries 11 through 54 include both progressive (non-interlaced) and interlaced hosts with a standard 4:3 or 5:4 aspect ratio. They are listed in order of decreasing resolution and frequency. Entries 55 through 61 are 16:9 wide screen hosts. Host #11 is the host used for default operation.

#	NAME	HFP	HS	HBP	HACT	VFP	VS	VBP	VACT	HFREQ	SYNC	HPOL	VPOL	IL
1	(user defined hosts)													
10														
11	VESA_1280x1024_75	16	144	248	1280	1	3	38	1024	799805		1	1	0
12	VESA_1280x1024_60	48	112	248	1280	1	3	38	1024	639835		1	1	0
13	1280x1024_59.94	48	112	248	1280	1	3	38	1024	638975		1	1	0
14	1280x1024_50	52	116	250	1280	1	3	38	1024	532995		1	1	0
15	VESA_1280x960_60	96	112	312	1280	1	3	36	960	600025		1	1	0
16	1280x960_59.94	96	112	312	1280	1	3	36	960	599415		1	1	0
17	1280x960_50	96	112	312	1280	1	3	36	960	500005		1	1	0
18	EIA_1260x946_30	44	136	164	1260	8	8	61	473	306925		1	1	1
19	EIA_1164x874_30	36	112	140	1164	6	6	59	437	283425		1	1	1
20	SUN_1152x900_66	30	128	194	1152	2	4	31	900	617975		1	1	0
21	APPLE_1152x870_75	32	128	144	1152	3	3	39	870	686815		1	1	0
22	VESA_1152x864_75	64	128	256	1152	1	3	32	864	675035		1	1	0
23	EIA_1080x809_30	26	96	118	1080	6	6	54	404	262445		1	1	1
24	1024x768_100	24	136	160	1024	3	6	29	768	806065		1	1	0
25	VESA_1024x768_85	48	96	208	1024	1	3	36	768	686815		1	1	0
26	VESA_1024x768_75	16	96	176	1024	1	3	28	768	600245		1	1	0
27	VESA_1024x768_70	24	136	144	1024	3	6	29	768	564785		0	0	0
28	VESA_1024x768_60	24	136	160	1024	3	6	29	768	483655		0	0	0
29	1024x768_59.94	24	134	158	1024	3	6	29	768	483115		0	0	0
30	1024x768_50	24	136	160	1024	3	6	29	768	403035		0	0	0
31	VESA_1024x768_43	8	176	56	1024	0	8	41	384	356015		1	1	1
32	EIA_900x674_30	20	64	80	900	5	5	45	337	218705		1	1	1
33	APPLE_832x624_74	32	64	224	832	2	3	38	624	497165		1	1	0
34	EIA_832x624_30	16	56	64	832	5	5	41	312	202535		1	1	1
35	800x600_100	32	96	128	800	1	2	22	600	625005		1	1	0
36	VESA_800x600_85	32	64	152	800	1	3	27	600	536735		1	1	0
37	VESA_800x600_75	16	80	160	800	1	3	21	600	468755		1	1	0
38	VESA_800x600_72	56	120	64	800	37	6	23	600	480795		1	1	0
39	VESA_800x600_60	40	128	88	800	1	4	23	600	378805		1	1	0
40	800x600_59.94	40	128	88	800	1	4	23	600	376425		1	1	0
41	VESA_800x600_56	24	72	128	800	1	2	22	600	351565		1	1	0
42	800x600_50	32	96	128	800	1	2	22	600	312505		1	1	0
43	PAL_768x576_25	22	70	84	768	5	5	39	288	156255		0	0	1
44	640x480_100	16	96	48	640	10	2	33	480	525015		0	0	0
45	VESA_640x480_85	56	56	80	640	1	3	25	480	432695		0	0	0
46	VESA_640x480_75	16	64	120	640	1	3	16	480	375005		0	0	0
47	VESA_640x480_72	24	40	128	640	9	3	28	480	378605		0	0	0
48	VESA_640x480_60	16	96	48	640	10	2	33	480	314735		0	0	0
49	640x480_59.94	16	96	48	640	10	2	33	480	314735		0	0	0
50	640x480_50	16	96	48	640	10	2	33	480	262505		0	0	0
51	NTSC_640x480_30	44	112	104	1280	6	6	29	242	157345		0	0	1
52	VESA_720x400_85	36	72	108	720	1	3	42	400	379275		0	1	0
53	VESA_640x400_85	32	64	96	640	1	3	41	400	378605		0	1	0
54	VESA_640x350_85	32	64	96	640	32	3	60	350	378605		1	0	0
55	1280x768_56	48	112	248	1280	1	3	30	768	451165		0	0	0
56	1280x720_100	110	40	220	1280	5	5	20	720	750015		0	0	0
57	1280x720_60	108	40	214	1280	5	5	20	720	450005		0	0	0
58	1280x720_59.94	112	40	224	1280	5	5	20	720	449555		0	0	0
59	1280x720_50	110	40	220	1280	5	5	20	720	375005		0	0	0
60	852x480_60	20	66	52	852	6	6	33	480	314915		0	0	0
61	852x480_59.94	20	66	52	852	6	6	33	480	314685		0	0	0

FIGURE 6. The Host List

HostLOAD <1...59>

Loads the indicated host from the list (see Figure 6).

HostName <name> (up to 17 alphanumeric characters; no spaces)

Names the current host. The **HostSave** command must be used to save the HostName information.

HostSave <1...10>

Saves the current host settings into the Host List (Figure 6). The argument <1...10> specifies which Host List position is used. When the **HostSave** command is issued, the information specified in the **HostTiming** command is stored in the Host List.

HostTiming <HFP> <HS> <HBP> <HACT> <VFP> <VS> <VBP>
<VACT> [<HFREQ> <SYNC> <HPOL> <VPOL> <IL>]

Sets the timing for the current host. The Parameters are defined as follows:

HFP	• horizontal front porch	(0...640)	pixels
HS	• horizontal sync	(16...640)	pixels
HBP	• horizontal back porch	(0...640)	pixels
HACT	• horizontal active	(16...1280)	pixels
VFP	• vertical front porch	(0...512)	lines
VS	• vertical sync	(2...32)	lines
VBP	• vertical back porch	(0...512)	lines
VACT	• vertical active	(12...1024)	lines
HFREQ	• horizontal frequency in Hz	(15...90)	kHz
SYNC	• sync format	3, 4, or 5	wires
HPOL	• horizontal sync polarity	(1/0)	
VPOL	• vertical sync polarity	(1/0)	
IL	• interlaced/non-interlaced	(1/0)	

Factory default: Host #11, 1280x1024, 75 Hz

OPTimize <ON|OFF>

Improves the horizontal resolution. This command is useful when the display device is a CRT and the output resolution (host) is less than 1280x1024 pixels. If the display is a discrete (sampled) device, such as an LCD or DLP, and you turn **OPTimize ON**, you may get a modulus mismatch, creating vertical banding.

Factory default: OFF

SWITCHING & FADING

Transition effects between the Program (**LiveINput**) and Preview (**PreviewINput**) inputs are supported. For effects other than a hard switch, the transition is viewed on the Program display only. The Preview display does a hard switch at the completion of the transition effect.

FADE

Effects a fade/dissolve. Fades between Program and Preview inputs.

If Preview input is currently <Black>, then effect would be fade to black. If Program display is currently <Black>, then effect would be to fade up from black to Preview input.

The duration of the fade is controlled by the **TransitionTime** value. A manually controlled fade is also supported. See **ManualControl** <ON|OFF>.

HWipe

Effects a horizontal wipe transition. Wipe is between Program and Preview inputs. The duration of the wipe transition is controlled by **TransitionTime** value. Alternatively, a manually controlled wipe is also supported. See **ManualControl** <ON|OFF>.

If Preview input is currently <Black>, then the effect is a wipe to black.

LiveINput <1|2|3|4|Black>

Selects the Live (Program) display input; if the selection is different than the current Live selection, effect is a hard switch to the new signal on the Live display. Argument <1...4> selects an input; argument <Black> switches the Live display to black.

ManualControl <ON|OFF>

Turns on and off the ability to manually control a transition effect. Installations wanting to apply a “fader bar” to control fades and wipes would want to turn **ManualControl** <ON>, and then use **ManualSelect** to choose the transition type, and **ManualValue** to send transition values.

When the fader is under manual control, there is no gamma tracking. That is, the gamma value of the current input is used throughout and after the transition to the target input.

Factory default: OFF

ManualSelect <FADE|HWIPE|VWIPE>

Sets the transition type for a manually controlled transition effect. Installations wanting to apply a “fader bar” to control fades and wipes would want to turn

ManualControl <ON>, and then use **ManualSelect** to choose the transition type, and **ManualValue** to send transition values.

When **ManualSelect** is set to <FADE>, the **HWIPE** and **VWIPE** commands are disabled. Also, with the <FADE> setting, the Preview display is not updated at the end of the transition.

When **ManualSelect** is to either <HWIPE> or <VWIPE>, eight pixels of the preview input appear in place of the left most eight pixels of the live input.

ManualValue <0...255>

Sends the fader value for manually controlled transitions. Installations wanting to apply a “fader bar” to control fades and wipes would want to turn **ManualControl** <ON>, and then use **ManualSelect** to choose the transition type, and **ManualValue** to send transition values.

ManualValue is only valid when **ManualControl** is on. A value of <0> is 100% of one image (Program), and <255> is 100% of the other (Preview).

PreviewINput <1|2|3|4|Black>

Selects the Preview display input with argument <1...4>, or switches Preview display to black if <Black> argument is used.

SWItch

Switches between **LiveINput** and **PreviewINput** input selections. If Preview input is currently <Black>, then the effect would be a switch to black.

TransitionTime <0.1..20.0>

Sets the transition time for **FADE**, **HWipe**, and **VWipe** effects. The value is in seconds.

Factory default: 2.0 seconds

VWipe

Effects a vertical wipe transition. Wipe is between **LiveINput** and **PreviewINput** input selections. If Preview input is currently <Black>, then the effect would be a wipe to black.

The duration of **VWipe** is controlled by the **TransitionTime** value. A manually controlled wipe is also supported. See **ManualControl** <ON|OFF>.

IMAGE CONTROLS

In general, all image controls are stored in the EEPROM, either automatically or at your discretion (see **AUTOSAVE** <ON|OFF> on page 40), and therefore retained through power cycles. For RGB inputs, parameters for **BRi**ght, **CON**trast, and **GAM**ma must be saved along with the input timing information in the Input List. When an RGB input is saved to the Input List with the **IN**putSave command, the parameters are stored along with the timing data. For video inputs, one set of image parameter information is saved automatically for each input connector.

BRight <input#|ALL> <-500..500>

Sets the brightness of the selected input. The <ALL> argument recalls or sets brightness for all four inputs. For RGB inputs, the value is automatically saved with **IN**putSave command.

Factory default: 0

CONtrast <input#|ALL> <0...200>

Sets the contrast of the selected input. The <ALL> argument recalls or sets contrast for all four inputs. For RGB inputs, the value is automatically saved with **IN**putSave command.

Factory default: 100

DoubleBuffer <input#> <ON|OFF>

The double buffering feature eliminates pointer crossover. This is a visual artifact which can be visible in imagery containing horizontal motion—for example, a camera panning from left to right—or scene changes. It appears as a brief, horizontal break in the picture. Your eye may not discern it, but what you are seeing is a portion of one frame of video and a portion of another.

With **Double**Buffer ON, pointer crossover is eliminated. The trade off is that horizontal motion may appear a little jerkier. **Double**Buffer is applicable to both RGB and video inputs. When setting **Double**Buffer for input 1, first select the specific input type with the **IN**putType command.

DoubleBuffer is only valid if the output host is progressive (non-interlaced), and if the input is an RGB signal, it must also be progressive. **Double**Buffer is also valid for all video inputs on the video input option board.

Factory default: ON

Freeze <input#> <ON|OFF>

Turns the freeze status of selected input ON or OFF. If **Free**ze is on, it delays action of **BRi**ght, **CON**trast, and **GAM**ma commands until **Free**ze is turned off. The freeze status is maintained through switching and fading transitions. Remember, it is the input that is frozen, not the output display.

Factory default: OFF

GAMMA <input#|ALL> <0.5...2.0>

Sets the gamma of the selected input. The <ALL> argument recalls or sets gamma for all four inputs. For RGB inputs, the value is automatically saved with **INputSave** command.

Factory default: 1.0

HUE <-180...180>

Sets the color hue of the input. 0 is the nominal setting for all video input types.

HUE is only valid for video option board inputs.

Factory default: 0

OVERSCAN <input#> <ON|OFF>

OVERSCAN is used to automatically affect a 2% zoom on all video inputs of the specified channel. **OVERSCAN** does not affect **WSR** values. This command is only valid for video inputs option board channels.

OVERSCAN is useful to trim off ragged edges of video signals, such as the head switching effect often seen with video cassette recorders.

Factory default: OFF

PAN <input#>

Activates the pan utility. Affects the **WDR** value for the input. Only a zoomed input can be panned.

The controls for the utility are as follows:

i = pan up
j = pan left
l = pan right
m = pan down

.....
q = quit



.....
 If response to pan control appears delayed, check the **AUTOSAVE** state. If **AUTOSAVE** is set to <ON> you may encounter sluggish and jerky response with the pan utility. Please read detail on **AUTOSAVE** command before changing state. See **AUTOSAVE** <ON|OFF> on page 40.

RSR <input#>

Resets source rectangle (**WSR**) to default value, that is equal to the HACT and VACT measurements of the specified input signal. Also resets bright, contrast, gamma, saturation, hue, and sharpness values to defaults.

SATuration <0..200>

Sets the color saturation level of the input. 100 is the nominal setting. **SATuration** is only valid for video option board inputs.

Saturation and contrast levels are interrelated. When the contrast level is changed, the saturation level tracks with it. For example, if you increase **CONTRast** by 10, **SATuration** likewise increases linearly with **CONTRast** but at a varying slope depending on the **SHARPness** setting and input video mode. Ultimately, the SynchroMaster maintains proper RGB output levels reducing differential gain and phase errors. This keeps the values at a set relationship. If desired, after setting **CONTRast**, you can set **SATuration** directly to achieve an offset from the **CONTRast** setting.

Factory default: 100

SHarpness <input#> <0...3>

Sharpness is a trade-off between sharpness and aliasing. The nominal setting of <2> represents the most pleasing compromise. For increased sharpness—and increased aliasing—select a higher value for **SHARPness**. For decreased aliasing—and decreased sharpness—select a lower value.

SHARPness is only valid for video option board inputs.

Factory default: 2

WSR <input#> <x> <y> <width> <height>

Sets the source rectangle for the selected input. The source rectangle is the portion of the original input that is displayed on screen. By default, **WSR** is set to show the entire image. That is, the default value for RGB inputs is equal to the HACT and VACT measurements of the specified input signal. For video, **WSR** defaults to 720x480 for NTSC and 720x574 for PAL.

The source rectangle is used to zoom in or out on an image. The <x> and <y> coordinates represent coordinate screen starting point from which to draw the supplied values of <width> and <height>.

Example—To zoom in on the upper left quadrant of an 800x600 input, the **WSR** values are:

```
>wsr <input#> 0 0 400 300
```

To display only the bottom right quadrant, the **WSR** values are:

```
>wsr <input#> 400 300 400 300
```

The full, default source rectangle for this 800x600 input is:

```
>wsr <input#> 0 0 800 600
```

WSR resets to defaults whenever the signal is acquired or reacquired. That is, if you remove or replace the input signal, or if you change the input type selection on a single channel with the **INputTYPE** command, then **WSR** resets to the default values for the newly acquired signal.

ZooM <input#>

Activates the zoom utility. Affects the **WSR** value for the input. The zoom utility controls are:

i = zoom in **o** = zoom out **q** = quit

The maximum zoom is limited in all cases to no more than two times the original image. Not all inputs will generate a 2x zoom ratio, however. The amount of available zoom range is dependent on the pixel rate of the input signal. See discussion below for details on how to calculate this maximum zoom ratio.



.....

If response to zoom control appears delayed, check the **AUTOSAVE** state. If **AUTOSAVE** is set to <ON> you may encounter sluggish and jerky response with the zoom utility. Please read detail on **AUTOSAVE** command before changing state. See **AUTOSAVE <ON|OFF>** on page 40.

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ZOOM RANGE

The SynchroMaster has a limited zoom range. There is a maximum of a 2X zoom, and the actual amount of zoom varies with the input signal. The higher the pixel rate of the input signal the lower the zoom range.

The maximum input pixel rate for the SynchroMaster is 140MHz. If the pixel rate of your input equals 140MHz there will be no zoom range available. For signals of less than 140MHz pixel rate there will be an available zoom percentage. At a pixel rate of 70MHz or less, the zoom range will be 2X.

MISCELLANEOUS

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AUTOSAVE <ON|OFF>

The **AUTOSAVE** feature automatically stores the system configuration approximately every 10 seconds. This process stores configuration information

such as Host List and Input List data, host settings, and Program and Preview input selections.

AUTOSAVE allows the user to turn the NVRAM automatic update mode on or off. Without the argument, the command shows the current state. The autosave state is saved in the NVRAM.



The **AUTOSAVE** feature can cause sluggish response to some SynchroMaster controls, particularly switching and fading transitions, and zoom and pan operation. While the **AUTOSAVE** feature is useful during setup of the system, is it best set to <OFF> during live presentation events.

Even if **AUTOSAVE** is set to <OFF>, **BAUDrate** and **AUTOSAVE** commands are still written to the NVRAM automatically. With **AUTOSAVE** set to <OFF>, use the **SAVECONFIGURATION** command to perform manual NVRAM updates.

Factory default: OFF

DEMO

Runs the built-in demo sequence. The demo is a looping display script which alternates between inputs 1 and 2, using the different transition effects.

Type “**q**” to quit demo.

FrontPanel <ON|OFF>

Enables/Disables the front panel.

Help [<command_name>]

Help lists all of the commands and their arguments.

Help [<command_name>] returns usage information on the specified command.

ID

Displays the product ID—product name, firmware version # and date, serial number, and input channel information. For each of the four inputs, the available input format is reported. In a system configured with four RGB inputs and two optional video input boards, the input format would be reported as:

```
TYPE SYNCHROMASTER 450
MFG_DATE 9/1/2000
SERIAL_NUMBER XXXXX
FIRMWARE_REVISION V 2.01
Input 1: RGB/Video
```

Input 2: RGB
 Input 3: RGB/Video
 Input 4: RGB

RestoreFactoryDefaults

This command restores the factory defaults. In the process, the Host and Input Lists are cleared, and all image parameters are set to nominal values. The output is set to Host 11, a 1280x1024 pixel resolution signal, at 75Hz.

SAVECONFIGURATION

The **SAVECONFIGURATION** command is generally used when the autosave feature has been turned off. (See **AUTOSAVE** command, page 40.)

Issuing this command forces an update of the system's NVRAM. This stores configuration information such as Host List and Input List data, Host settings, and Program and Preview input selections.

STATUS

Returns status information on the SynchroMaster and its current settings.

TestPattern <ON|OFF>

This command turns the internal test pattern (color bars) on and off.

Factory default: OFF

VERSION

Returns firmware, bootcode, UFP, and hardware revision information.

SERIAL PORT FUNCTIONS

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BAUDrate <1200|2400|9600|19200|38400|57600|115200>

Sets the serial port baud rate. Value saved in NVRAM.

Factory default: 9600

ECHO <ON|OFF>

Turns command echo on and off. Value saved in NVRAM. The echo is only on commands typed and sent to the unit. Note: **ECHO** setting has no effect on responses issued by the SynchroMaster. These are always visible, regardless of **ECHO** status.

Factory default: ON