RS232 Control for Margay

The ascii protocol for RS232 in Margay lets you use English words with a minimum of mysterious code.

✎ You should already know how to operate Margay with the remote control and how to read the menus. See the Margay User Guide.

How to Form Commands

Basic Rules

- RS232 commands consist of a string of ascii characters.
- All numeric values are decimal; you do not need to use hex or binary digits in the commands.
- Spaces or tabs may be used in the commands to separate the parts and make them easier for humans to read. This "white space" is ignored by the command reader in the Margay.
- You cannot use commas, slashes, or other punctuation as separators. Periods have a special purpose in commands.
- Commands are not case sensitive, so you can use upper and lower case letters as you wish, EXCEPT the first two letters of every command must be both upper or both lower case. After that, it doesn't matter.
- When a command requires a response, wait for the response before sending another command to another display.

Types of Commands

Key Commands

Key commands simulate pressing a key on the remote control. This is not very useful unless you can see the screen, because you won't know where the selector is in the menu.

Operation commands are more flexible and easier to use than Key commands

Operation Commands

Operation commands tell the display exactly what to do.

Set green in the white color balance to 27.
Turn off the lamps.
Save the current settings into memory slot 23.
Recall memory slot 7.

Operation commands can ask questions and get answers, such as

What is the state of lamp 1? (on, off, failed, etc.)
Is the Auto Lamp feature on or off?
Which connector is used if memory slot 3 is recalled?

String Commands

String commands send strings of characters to the display. This is mainly used in MIP (Message In Picture), a feature available in Bobcat and Bay Cat.

String commands can also retrieve information from the display. For instance,

```
ST 00 BUILD.DATE?
```

would return the build date of the firmware:

```
ST 00 BUILD.DATE= "JUN 15 2004 08:48:24"
```

Addresses in Commands

All commands must be addressed. Each display has a two-character ID that is unique to it. The two characters can be 0-9, A-Z. The first character is called the **Group ID**, and the second one is the **Unit ID**.

- Commands can be addressed to **individual** displays: 03, D5, 00, ZZ. When this form of address is used, the display will respond to the host computer.

✎ Whenever a command is sent to an **individual** ID, wait for the response before sending a second command.

- Commands can be addressed to **all** displays: **
- Commands can be addressed to a **group** of displays: *8 (all displays with 8 as the Unit ID), 0* (all displays with 0 as the Group ID).

Direct Addressing

There is another way to address displays: **direct** addressing. When the address is two hyphens (--), all the displays in the serial loop receive the command, all the displays execute the command if they can, but only the first display in the loop responds to the host computer.

Direct addressing is handy when you want to control a single display, but you don't know its ID. Just connect a serial cable straight to the one display and use direct addressing.

However, use directly addressing with caution when cabled for loop-thru RS232, because every display in the loop will execute any directly addressed command. Direct addressing with loop-thru connections is therefore *not recommended*.

Command Structure

All commands start with **two letters**:

'OP' or 'op' for operations commands (but not 'Op' or 'oP')
'KY' or 'ky' for key commands (but not 'Ky' or 'kY')
'ST' or 'st' for string commands (but not 'St' or 'sT')

The next two characters are the **address**.

The next section of the command is the operation, the remote keyo or the string, the main part of the command telling the display what to do.

A few commands have a 'target.' For example, to move the LCD motor, you must state which motor to move: right, left, or horizontal. Or to determine whether a memory slot is empty, you

must target the memory slot number. **The target is *always* in (parentheses).**

The next character is the command function symbol. There are five function symbols:

Command Functions

Function	Symbol	Action on
Set	=	makes the take that value
Get	?	asks what the value is
Increment	+	adds 1 to the current value
Decrement	–	subtracts 1 from the current value
Execute	[none]	performs an action, such as a reset

Some commands are Execute only, such as resetting the lamp hours.

- Others are Set and Get only, such as setting the curtain pattern or asking what the curtain pattern is.
- Some are Get only, such as getting the horizontal frequency of the source.
- And some are Set, Get, Increment, Decrement, such as color balance.

The last part of the command, for Set commands only, is the **value**. The value may be a number or one or two words.

✎ The command line must **always** end with a **carriage return** character, noted in the examples below as `[CR]`. The Margay will *not* act on the command unless the last character is a carriage return character (ascii hex value: 0D).

Sample Operation Commands

- `op 03 auto.position.disable = DISABLED [CR]`
  "Disable the auto position feature in display 03"
- `op 4G auto.position.disable ? [CR]`
  "Is the auto position feature enabled or disabled in display 4G?"
- `op 0* brightness + [CR]`
  "Increment the brightness in all displays with Group ID 0."
- `op ** curtain [CR]`
  "Turn on (or off, if it is already on) the curtain in all displays."
- `op 34 fan.state (lamp) ? [CR]`
  "What is the current state of the lamp fan in display 34?"
- `op 77 lamp.count = 2 [CR]`
  "Set the lamp count to 2 in display 77."
- `op 78 lamp.count ? [CR]`
  "What is the lamp count in display 78?"
- `op 00 center.point (red) ? [CR]`
  "What is the value for the red pixel at the center (sampling) point in display 00?"

As you see from Sample Key Commands sequence, if you are not looking at the screen, you don't know what you just did. You don't know where the cursor was at the start.

Sample Key Commands

- `ky 05 menu [CR]`
  "Press the MENU button on the remote for display 05."
- `ky 05 down [CR]`
  "Press the down arrow on the remote for display 05."
- `ky 05 enter [CR]`
  "Press the ENTER button on the remote for display 05."

Sample String Commands

- st 13 revision ?

Using the Operation Commands Table

The Operation Commands table starts on page 11.

Operations and Operation Numbers

The commands are listed in alphabetical order by Operation. In a command, you may use either the **ascii text** of the operation or its **Operation Number**. For instance, to get the aspect status, all these commands are equivalent:

- `op 38 aspect.level.status ? [CR]`
- `op38aspect.level.status? [CR]`
- `op 38 1115 ? [CR]`
- `op381115? [CR]`
- `OP 38 aSpect.LEveL.STAtus ? [CR]`

Target

If the Target column has anything in it, the command must use one (and only one) of the targets, and it must be in parentheses. Use either the ascii text or the Target Number. These are equivalent commands:

- `op2a center.point (red) ? [CR]`
- `op2A1110(0)? [CR]`

Command types allowed

Use only the types listed in this column.

- = tells the display to take the value that follows.
  `op 4* white.balance (all) = 31 [CR]`
  …means that all displays with a Group ID of 4 (and Unit ID of anything) will set their white balance levels for red, green and blue to 31.
- ? asks for the value.
  `op 09 contrast ? [CR]`
  ...tells display 09 to send the value of contrast to the host computer. Note that the display will *only* respond if it is addressed individually.
- + increments the value.
  `op ** gray.balance + [CR]`
  …makes all the displays increase their Gray Balance value by one. Note that any display whose value is already at the top (in this case 15) will not increase it.

- – decrements the value.
  `op ** white.balance – [CR]`
  …makes all the displays decrease their White Balance value by one. Any display that had a white balance of 0 before the decrement will not change.
- [execute] means the command is executed. No character follows the command (or the Target, if it has one).
  `op 04 lamp.hours.reset (lp2) [CR]`
  …resets the lamp hours meter for Lamp 2 in cube 04.

✎ Any word or character or phrase appears between [**square brackets**] is for information or clarification only. It is not sent to the display or received from it.

Values

The Value may be sent as text or as a value number. In this column, some values have no text, such as the command `auto.level.status`. This command takes a value of 0 through 4, not "idle" or "working with black", etc. It replies with the same numerals, never words.

Text values can be sent in upper or lower case or with mixed case. They are listed in UPPER CASE in the table to make it easier to see the difference between the value and any [explanation].

[varies] means the range of acceptable values and replies varies with the type of source.

Reading the response

Two commands establish the features of the replies. (Remember the displays only reply when individually addressed.)

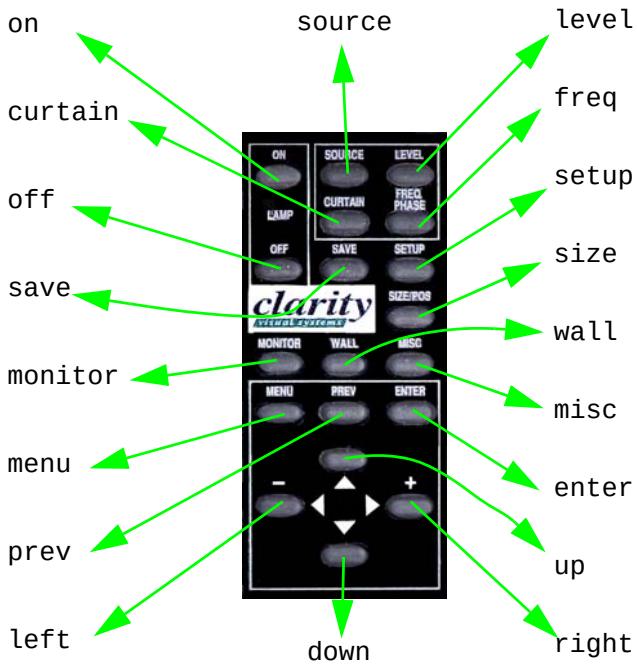
- `ascii.eol` determines the End Of Line character the display will send at the end of every command. Which one you use depends on what program you use to send commands and receive replies.
- `ascii.response` determines how you want the replies to look when they come back to you.
  a) **Symbolic** means the replies will come back as ascii characters, if the value column allows them.
  b) **Numeric** means that the Value Number will come back. Both of these will be preceded by the full string you sent.
  If you sent `op 12 curtain.pattern ? [CR]`
  the reply might be
  `OP 12 CURTAIN.PATTERN=GREEN` for Symbolic or
  `OP 12 1036=4` for Numeric.
  c) **Data** means that only the value would return, not the preceding information:
  `op 12 curtain.pattern [CR]` would return a single integer between 0 and `12`.

✎ Replies are always in ALL CAPS, regardless of how the query was sent.

Using Key Commands

Key commands always start with `ky` or `KY`. There are two kinds of key commands.

- `KY 07 menu [CR]`
  simulates pressing the menu button for display 07. All the other named buttons on the remote control can be "pressed" in this manner by using the name on the remote. This picture shows the command word for each named key.



- KY 07 R00 `[CR]`
  simulates pressing the upper left key on the remote. All the keys have "R" numbers associated with them, even keys that don't exist on the real remote.

RØØ	**RØ1**	**RØ2**
R1Ø	**R11**	**R12**
R2Ø	**R21**	**R22**
R3Ø	R31	**R32**
R4Ø	**R41**	**R42**
R5Ø	**R51**	**R52**
R6Ø	**R61**	R62
R7Ø	R71	**R72**
R8Ø	**R81**	R82

Examples of Operation Commands

Recalling Memories

✎ *Remember*: The slot target number used in the command is *one less than* the memory slot number as seen in the menus.

Recalling memories directly

Use `slot.recall ( )`. Put the memory number (minus 1) in the parentheses.

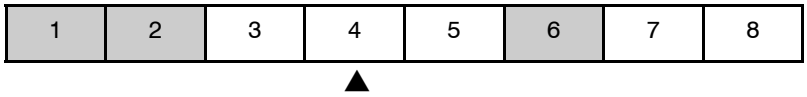
What is the difference between `slot.recall.target` and `slot.target`?

Assume that memory slots #1, #2, and #6 are used (full). Memory slots #3, #4, and #5 all the others are empty.

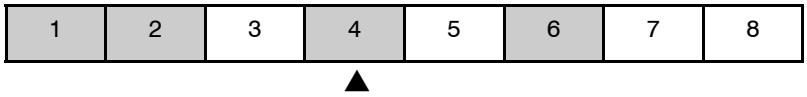
1	2	3	4	5	6	7	8

What follows is a series of example commands showing the difference between `slot.target` and `slot.recall.target`.

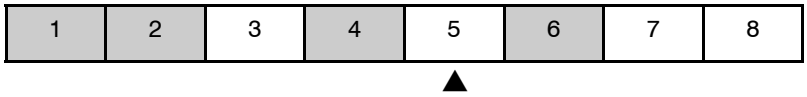
- `op 17 slot.target = 3 [CR]`
  This sets the memory slot to #4 in cube 17. Any further commands that need a memory slot will use this one until it is changed.



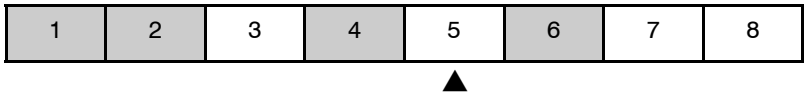
- `op 17 slot.action (save) [CR]`
  This saves all the current settings into memory slot #4 with the default memory name.



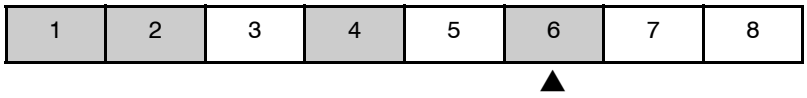
- `op 17 slot.target = 4 [CR]`
  This sets the memory slot to #5, which is empty.



- `op 17 slot.action (recall) [CR]`
  This action fails, because there is nothing in slot #5. Nothing happens to the picture on the screen; it does not change.

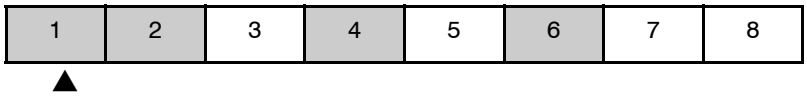


- `op 17 slot.recall.target = 4 [CR]`
  Sets the memory slot to #6, as before, because this is the next slot with something in it.



- `op 17 slot.action (recall) [CR]`
  This recalls slot #6.

- `op 17 slot.recall.target = 9 [CR]`
  Sets the memory slot to #1, because the system wraps around to find the next full slot, and all the slots.



- `op 17 slot.action (recall) [CR]`

Recalls settings from memory slot #1.

Asking and Telling

To ask about a value or condition, use a question mark [?]. No character should follow the question mark.
To set a value or condition, use an equal sign [=]. A value must follow the equal sign.

- `op 16 auto.lamp ? [CR]`
  asks whether the auto lamp feature is on or off for display 16.

- `op 1* auto.lamp = on [CR]`
  turns on the auto lamp feature for each display that has a Group ID of 1 (and any Unit ID).
- `op 1* auto.lamp ? [CR]`
  won't work. All queries [?] must be addressed to individual displays only; no asterisks [*] in the command line.

Types of Responses

Response from the display can be Symbolic (mostly text), Numeric (mostly numbers), or Data.

✎ Whenever a command is sent to an individual ID, wait for the response before sending a second command.

Symbolic

- `op 50 auto.lamp ? [CR]`
  would get the Symbolic response
- `OP 50 AUTO.LAMP=DISABLE`
  Text in responses are all caps, regardless of what you sent.

Numeric

- `op 50 auto.lamp ? [CR]`
  would get the Numeric response
- `OP 50 1037=0`
  Notice that you can send commands as text and get the response as numeric. 1037 is the Operation Number for auto.lamp, and 0 means Disabled. It works the other way, too. Ask the question with all numbers and get a text response, if ascii.response is set to Symbolic.

Data

- `op 50 auto.lamp ? [CR]`
  would get the Data response
- `0`
  You get only the answer and only in numeric form. This is used mainly when a sequence of commands is sent and the data is acted upon by the program. For instance, the program might query each display as to its lamp state, on or off, then send a Lamp On command to just those displays that are off.

✎ Remember: displays only respond when they are individually addressed. If you want to know a status or a value in six different displays, you must ask the question six times, and you must wait for the response from each display before sending the question to the next one.

Problems

- Is the baud rate of the host (command sending device) the same as the display? They must match. Check the display's User Guide.
- Is the host (command sending device) waiting for the response from the display before sending another command? When sending a command to a individual ID, make the host wait for a carriage return character before sending the next command.

(There is no response from the displays if the command address contains an asterisk (*).

An index follows the table that lists all the entries, plus other names for the entries. For instance, “memory” in the index will lead to “slot,” which is the name used in the commands to refer to memory numbers. All commands are Operation commands which should start with “op”, except those marked with [ST] which are String commands.
For String commands, use the form “ST -- build.date ?” without the quotes, and substitute the cube ID for the -- . There is no target for string commands.

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
1	ascii.eol	1138			= ?	CR CRLF LF LFCR	0 1 2 3	Determines the End Of Line character used in replies.
2	ascii.response	1137			= ?	SYMBOLIC NUMERIC DATA [only]	0 1 2	Determines the style of the reply: SYMBOLIC replies with the Value [except for what is in square brackets]; NUMERIC replies with the Operation number and Value number; DATA replies with the Value number only.
3	aspect	1054			= ?	FILL CROP LETTERBOX WIDESCREEN ONE.TO.ONE VIDEO	0 1 2 3 4 5	
4	aspect.status	1092			?	EQUAL TALLER WIDER	0 1 2	TALLER and WIDER refer to the source picture being taller than or wider than the aspect ratio of the screen or wall.
5	auto.codes	1132			= ?	DISABLE ENABLE	0 1	
6	auto.frequency.disable	17421			= ?	NOT.DISABLED DISABLED TOGGLE	0 1 2	
7	auto.lamp	1037			= ?	DISABLE ENABLE	0 1	
8	auto.level	1116			=	BLACK WHITE	0 1	Initiates the Auto Level process of either Black Level or White Level.

Operation Commands for Margay

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9	auto.level.disable	17423			= ?	NOT.DISABLED DISABLED TOGGLE	0 1 2	
10	auto.level.status	1115			?	0 [idle] 1 [working on black] 2 [working on white] 3 [error black] 4 [error white]		"error" means the sample pixel is not black (or white). This has a wide tolerance, but prevents auto black level operating on a white pixel, or auto white operating on a black pixel.
11	auto.phase.disable	17420			= ?	NOT.DISABLED DISABLED TOGGLE	0 1 2	
12	auto.position.disable	17422			= ?	NOT.DISABLED DISABLED TOGGLE	0 1 2	
13	auto.resync.disable	17438			= ?	NOT.DISABLED DISABLED TOGGLE	0 1 2	
14	auto.setup	16899			[execute]			
15	ballast.dim.level	1210			= ? + –	0 – 8		0 is lowest power to lamp; 8 is highest. Use 0 or lamp life will be shorter. Only works if lamp is on.
16	ballast.fault	1212				NONE LAMP.OVER.VOLTAGE MAINS.OVER.VOLTAGE TEMP.TOO.HIGH ASYMMETRY.DETECTED LAMP.UNDER.VOLTAGE MAINS.UNDER.VOLCAGE NTC.DEFECTIVE BAD.SYNC.FREQ	0 1 2 3 4 5 6 7 8	
17	ballast.ratio	1215			?	0 – 999		Pulse/peak ratio x 100 (121 = 1.21)

Operation Commands for Margay

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18	ballast.status	1239				?			L.NP.NU L.P.NU L.NP.S.NU L.P.S.NU STANDBY L.NP.U L.NP.S.U L.P.S.U FAULT	2 3 4 5 10 11 12 13 14	L = Lamp on P = pulse; NP = No pulse S = sync activated NU = UART mode not active U = UART mode active STANDBY = Standby, UART mode active
19	ballast.sw.version	1216				?			0 – 65535		Balllast firmware revision
20	ballast.temp	1214				?			0 [shut down] 1 [out of spec] 2 [out of spec] 3 [critical] 4 – 7 [ok]		
21	ballast.voltage	1213				?			0 – 255		voltage at the lamp
22	baud	1143				?			2400 4800 9600 19200		baud rate
23	beep	1074			=				0 [single beep] 1 [triple beep]	0 1	
24	beep.enable	1076			=	?			DISABLE ENABLE	0 1	
25	beep.force	1075			=				0 [single beep] 1 [triple beep]	0 1	Forces a beep whether beep is enabled or not.
26	big.picture.key	1119				?			DISABLE ENABLE	0 1	
27	blue.only	1057			=	?			DISABLE ENABLE	0 1	

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28	border.color	1151			=	?			RED GREEN BLUE DKBLUE DKGREEN DKRED BLACK WHITE	63488 2016 31 8 1024 32768 0 65535	
29	brightness	16387			=	?	+	–	0 – 255		Applies to composite, S-video video sources only.
30	build.date [ST]	1				?					Retrieves text: firmware compilation date and time.
31	bytes.received	1140	RS232 RS485	0 1		?			0 – 32767		
32	bytes.sent	1141	RS232 RS485	0 1		?			0 – 32767		
33	center.point	1110	RED GREEN BLUE	0 1 2		?			0 – 255		The center point is the one pixel used by auto level.
34	clear.input.memory	16902				[execute]					Makes the display “forget” any sources it has seen before.
35	clipboard.gray.balance	1163	RED GREEN BLUE ALL	0 1 2 3		?			0 – 15		
36	clipboard.recall	1161				[execute]					
37	clipboard.save	1162				[execute]					
38	clipboard.white.balance	1164	RED GREEN BLUE ALL	0 1 2 3		?			0 – 31		

Operation Commands for Margay

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39	color.temp	1268				3200K 5500K 6500K 8500K CUSTOM	0 1 2 3 4	
40	colorspace	1180			= ?	RGB YPBPR	0 1	
41	commands.received	1107	RS232 RS485	0 1	?	0 – 32767		
42	contrast	16388			= ? + –	0 – 255		Applies to composite, S-video, video sources only.
43	curtain	1035			[execute]			
44	curtain.pattern	1036			= ?	NONE WHITE GRAY RED GREEN BLUE BLACK RED.SCALE GREEN.SCALE BLUE.SCALE GRAY.SCALE COLOR.BARS LOGO GRID CHECK4X4 COLORSCALE UNIFORMITY ALIGNMENT FOCUS CUSTOM	0 1 2 3 4 5 6 7 8 9 10 11 12 18 20 21 22 24 25 26	0 = no pattern displayed now
45	custom.pattern	1237	RED GREEN BLUE	0 1 2	= ? + –	0 – 255		

Operation Commands for Margay

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46	custom.pattern	1237	ALL	3			+	–	0 – 255		
47	display.power	1094			=	?			OFF ON	0 1	This turns on/off lamps. For queries, system.state provides more information.
48	dlp.temp	1227				?			0 – 65535		Temperature of optical engine x 10 (400 = 40.0°C)
49	engine.fan	1278				?			0 1		0 = sensed enginel fans running 1 = one or more sensed fans stopped
50	engine.on	1277				?			OFF ON		
51	fan.state	1096				?			ON OFF FAILED WAS.FAILED	0 1 2 3	WAS.FAILED means the fan failed and was restored to operation, but the AC power was not recycled.
52	fault.override	1101			=	?			OFF ON	0 1	
53	fault.state	1175				?			INTERLOCK FAN 350v WAIT.THEN.ON WAIT LAMP.SAVER READY OK STRIKING DLP WARMING.UP LAMP	0 1 2 6 7 11 12 14 13 3 16 5	
54	frame.locked	1275			=	?			DISABLE ENABLE	0 1	
55	frequency	16404			=	?	+	–	[varies]		
56	frequency.horizontal	1070				?			[KHz*100]		

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57	frequency.pixel	1069				?			[MHz*100]		
58	frequency.vertical	16403				?			[Hz]		
59	gain.all	1033				?	+	–	0 – 255		For ?, returns the average of red, green, and blue. For + and –, adjusts red, green and blue. Applies to analog sources only.
60	gain.blue	16394			=	?	+	–	0 – 255		Gain.whatever adjusts the White Level; Offset.whatever adjust the Black Level. Applies to analog sources only.
61	gain.green	16392			=	?	+	–	0 – 255		When source is analog and colorspace is YPBPR, this controls the white level (Contrast) of whole picture, not just the green. Default value varies and is set at factory. Applies to analog sources only.
62	gain.red	16390			=	?	+	–	0 – 255		
63	gamma	1232			=	?			FILM VIDEO	0 2	
64	gray.balance	1031	RED GREEN BLUE	0 1 2	=	?	+	–	0 – 15		
65	gray.balance	1031	ALL	3			+	–	0 – 15		
66	highbright	1071			=	?			OFF ON		
67	hue	16395			=	?	+	–	0 – 255		Used with composite, S-video and component video sources only. When colorspace = YPBPR, this controls the color hue. Default value is 100.
68	interlaced	1065				?			OFF ON	0 1	
69	interlock.state	1072				?			OFF ON	0 1	

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
70	invert	1272			= ?	OFF ON	0 1	Sets menus and DLP motors for inverted installation. Does not invert source picture.
71	ir.remote	1095			= ?	DISABLE ENABLE	0 1	
72	justify	1053			= ?	LEFT [top] CENTER RIGHT [bottom] FILL	0 1 2 3	The values LEFT and RIGHT are used for top and bottom justification when the source aspect ratio is wider than the screencube.
73	lamp	1063			=	OFF ON	0 1	
74	lamp.hours.high	1111	LP1 LP2	0 1	= ?	[hours / 10000]		Do not set lamp, runtime or system hours/minutes unless actual time was lost, such as when electronics module is replaced. Note: Product warranties are not based on these timers.
75	lamp.hours.low	1102	LP1 LP2	0 1	= ?	[hours mod 10000]		
76	lamp.hours.reset	1104	LP1 LP1	0 1	[execute]			
77	lamp.minutes	1103			= ?	0 – 59		
78	lamp.saver	1105			= ?	DISABLE ENABLE	0 1	
79	lamp.saver.delay.hours	1145			= ? + –	0 – 23		
80	lamp.saver.delay.minutes	1144			= ? + –	0 – 59		

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
81	lamp.saver.state	1146			?	DISABLED USER.OFF AUTO.OFF ON WAIT.ON	0 1 2 3 4	USER.OFF = the lamps are off because the user turned them off. AUTO.OFF = they are off because lamp saver turned them off. ON = the lamps are on and Lamp Saver is on. WAIT.ON = the lamps are off, waiting for the cool-down timeout to end so they can come on.
82	lamp.state	1058	LP1 LP2	0 1	?	OFF ON STRIKING FAILED TRANSITIONING COOLING	0 1 2 3 5 6	For Lion XL/UXL: LP1 = front lamp; ballast.1 = front ballast; LP2 = rear lamp; ballast.2 = rear ballast
83	last.fault	1147			?	NO.FAULT 350V INTERLOCK OPT.ENGINE.COMM OPT.ENGINE ENG.FAN.STOPPED FAN LAMP	0 40 20 14 15 16 1 30	
84	last.fault.hours	1149			?	0 – 32767		Elapsed system time, not real time, since last fault.
85	last.fault.minutes	1148			?	0 – 59		
86	lcd.horizontal.resolution	1125			?	1024, 1600, 1280		
87	lcd.vertical.resolution	1126			?	768, 1200, 720		
88	menu.position.horizontal	12341			= ? + –	0 – 32767		Horizontal offset from the default side
89	menu.position.vertical	12342			= ? + –	0 – 32767		Vertical offset from the default side
90	menu.timeout	8194			= ? + –	0 – 60		Seconds menu will remain on screen; 0 = forever

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
91	menu.top	1189			[execute]			Used with Key commands to be sure the menu selector is at the top.
92	mip.current	1208				NOTE1 NOTE2 BANNER1 BANNER2 LIST1 LIST2 FULL1 LABEL1		
93	mip.enable	1192			= ?	DISABLE ENABLE	0 1	Global enable/disable for all MIP funcitions. When disabled, MIP does not appear in main menu.
94	mip.hide	1196			[execute]			
95	mip.interval	1206			= ?			Seconds to wait between Banner message cycles.
96	mip.offset.x	1242	NOTE1 NOTE2 BANNER1 BANNER2 LIST1 LIST2 LABEL1	1 2 3 4 5 6 8	= ?			Percent of range of vertical motion possible without allowing MIP to mave aff screen. Measured from the default edge.
97	mip.offset.y	1243	NOTE1 NOTE2 BANNER1 BANNER2 LIST1 LIST2 LABEL1	1 2 3 4 5 6 8	= ?			Percent of range of horizontal motion possible without allowing MIP to mave aff screen. Measured from the default edge.

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
98	mip.onscreen	1207			?	NONE NOTE1 NOTE2 BANNER1 BANNER2 LIST1 LIST2 FULL1 LABEL1	0 1 2 3 4 5 6 7 8	Which message is on-screen now?
99	mip.position	1194	NOTE1 NOTE2 BANNER1 BANNER2 LIST1 LIST2 FULL1 LABEL1	1 2 3 4 5 6 7 8	= ?	UPPER .LEFT UPPER.CENTER UPPER.RIGHT MID.LEFT MID.CENTER MID.RIGHT LOWER.LEFT LOWER.CENTER LOWER.RIGHT	0 1 2 3 4 5 6 7 8	
100	mip.show	1193	NONE NOTE1 NOTE2 BANNER1 BANNER2 LIST1 LIST2 FULL1 LABEL1 CURRENT PREV NEXT	0 1 2 3 4 5 6 7 8 255 254 253	[execute]			

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
101	mip.source.absent	1266			=	?			NONE NOTE1 NOTE2 BANNER1 BANNER2 LIST1 LIST2 FULL1 LABEL1	0 1 2 3 4 5 6 7 8	Speficies which message to display when source is absent.
102	mip.timeout	1195			=	?					Seconds to automatically hide message.
103	motor	1073	RIGHT HORIZONTAL LEFT SIZE	0 1 2 3	=				REVERSE FORWARD	5 15	
104	offset.all	1032				?	+	–	0 – 127		For ?, returns the average of red, green, and blue. For + and –, adjusts red, green and blue. Applies to analog sources only.
105	offset.blue	16393			=	?	+	–	0 – 127		Offset.whatever adjusts Black Level. Gain.whatever adjusts the White Level.
106	offset.green	16391			=	?	+	–	0 – 127		When colorspace = YPBPR, this controls the black level (Brightness) of whole picture, not just the green. Default value varies and is set at factory. Not used with digital sources.
107	offset.red	16389			=	?	+	–	0 – 127		
108	offset.reset	1177			[execute]						Sets offset.red, offset.green and offset.blue to mid levels.
109	opt.engine.state	1271				?			OK COMM.FAULT FAULT	0 1 2	
110	overscan	1184			=	?	+	–	0 – 20 [% of image hidden at edges]		

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
111	part [ST]	2				?					Retrieves text: Clarity firmware part number: 573-xxxx
112	pattern	1028			=	?			NONE WHITE GRAY RED GREEN BLUE BLACK RED.SCALE GREEN.SCALE BLUE.SCALE GRAY.SCALE COLOR.BARS LOGO GRID CHECK4X4 COLORSCALE UNIFORMITY ALIGNMENT FOCUS CUSTOM	0 1 2 3 4 5 6 7 8 9 10 11 12 18 20 21 22 24 25 26	
113	phase	16400			=	?	+	–	Range 0–31]		Value for = or ? commands is 0 – 31. In the menu, the value is shown in degrees. Each step (0 – 31) is 11.25 degrees.
114	plug.and.play	1152			=	?			DISABLE ENABLE	0 1	Enables/Disables DDC (EDID) response; factory default is enabled.
115	position.horizontal	16398			=	?	+	–	[varies]		
116	position.vertical	16399			=	?	+	–	[varies]		
117	product [ST]	3				?					Retrieves text: Clarity display product name, such as “Bobcat II”
118	product.type	1171				?			PUMA LION	0 1	

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
119	ps.350v.state	1176			?	FAILED OK	0 1	
120	replies.sent	1139	RS232 RS485	0 1	?	0 – 32767		
121	reset.balance	1034			[execute]			Resets color balance values to 31/7 (white 31; gray 7).
122	resolution.horizontal	16401			= ?	[varies]		
123	resolution.vertical	16402			= ?	[varies]		
124	revision [ST]	4			?			Retrievestext: firmware revision number.
125	rs485.termination	1259			= ?	DISABLE ENABLE	0 1	
126	runtime.hours.high	1113			= ?	[hours / 10000]		Do not set lamp, runtime or system hours/minutes unless actual time was lost, such as when electronics module is replaced. Note: Product warranties are not based on these timers.
127	runtime.hours.low	4100			= ?	[hours mod 10000]		
128	runtime.hours.reset	4613			[execute]			
129	runtime.minutes	4101			= ?	0 – 59		
130	saturation	16396			= ? + –	0 – 255		When source is analog and colorspace is YPBPR, this controls color saturation. Default value is 128. Used with composite, S-video and component video sources only.
131	select.source	17409			= ?	ANALOG.1 ANALOG.2 DIGITAL DIGITAL.RGB COMPONENT S.VIDEO COMPOSITE	0 1 2 2 3 4 5	

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
132	serial.diagnostics.clear	1188	RS232 RS485	0 1	[execute]			
133	sharpness	17431			= ?	SHARPES SHARP NORMAL SOFT SOFTEST	0 1 2 3 4	
134	slot.action	1082	SAVE RECALL DELETE	0 1 2	[execute]			Performs the act ion (save, recall, delete) on the currently targeted slot.
135	slot.current	1150			?	0 – 39 [slot # – 1] 255 [none now used]		
136	slot.delete	1174	0 [slot 1] 1 [slot 2] : 39 [slot 40] 255 [current target]		[execute]			
137	slot.full	1114	0 [slot 1] 1 [slot 2] : 39 [slot 40]	0 1 : 39	?	0 [empty] 1 [full]		
138	slot.name.clear	1081			[execute]			Operates on the currently selected slot (see slot.target and slot.recall.target)
139	slot.name.letter	1080	0 [1st char] 1 [2nd char] : 23 [last char]	0 1 : 23	= ?	[one ascii character value]		The target is the nth letter of the 24-character string: 0 – 23. The value is the ascii character to send: numbers, letters, punctuation. Not all punctuation is available.
140	slot.name.recall [ST]	5						Returns the current name of the target slot or --EMPTY--
141	slot.name.save [ST]	6						Returns the name that will be used when saving the target slot.

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
142	slot.recall	1173	0 [slot 1] 1 [slot 2] : 39 [slot 40] 255 [current target]		[execute]			
143	slot.recall.target	1077			=	0 [slot 1] 1 [slot 2] : 39 [slot 40]	0 1 : 39	
144	slot.save	1172	0 [slot 1] 1 [slot 2] : 39 [slot 40] 255 [current target]		[execute]			Slot.save, slot.recall and slot.delete are more direct ways accomplishing what slot.action does.
145	slot.setting	1078	PHASE COLORSPACE OFFSET.RED GAIN.RED OFFSET.GREEN GAIN.GREEN OFFSET.BLUE GAIN.BLUE BRIGHTNESS CONTRAST HUE SATURATION FREQUENCY VERT.TOTAL POSITION.VERTICAL POSITION.HORIZONTAL RESOLUTION.HORIZONTAL RESOLUTION.VERTICAL SHARPNESS	16400 1180 16389 16390 16391 16392 16393 16394 16387 16388 16395 16396 16404 16405 16399 16398 16401 16402 17431	?			

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
146	slot.setting (continued)	1078	WALL.HEIGHT WALL.COLUMN WALL.ROW WALL.MODE VIEWPORT.WINDOW.LEFT VIEWPORT.WINDOW.RIGHT VIEWPORT.WINDOW.TOP VIEWPORT.WINDOW.BOTTOM ZOOM.WINDOW.LEFT ZOOM.WINDOW.RIGHT ZOOM.WIVDOW.TOP ZOOM.WINDOW.BOTTOM	1049 1051 1050 1052 1039 1040 1041 1042 1044 1045 1046 1047	?			
147	slot.status	1083	0 [slot 1] 1 [slot 2] : 39 [slot 40]	0 1 : 39	?	EMPTY FILLED FILLED.AND.CURRENT NAME.EDITED	0 1 2 3	
148	slot.target	1068			= ?	0 [slot 1] 1 [slot 2] : 39 [slot 40]	0 1 : 39	Sets (or recalls) the target slot number for other actions. The target slot is used by slot.action, slot.name.clear, slot.name.letter, and slot.setting.)
149	sn.engine [ST]	12			?			Serial number of optical engine
150	source.search.status	1133			?	VIDEO.DISPLAYED GRAPHICS.DISPLAYED AUTO.RUNNING AUTO.SETUP.COMPLETE OUT.OF.RANGE SEARCHING DETECTED HOLDING IDLE	0 1 2 3 4 5 6 7 8	
151	sync.type	1064			?	UNKNOWN SOG COMPOSITE SEPARATE	0 1 2 3	

Operation Commands for Margay

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152	system.hours.high	1112			= ?	[hours / 10000]		Do not set lamp, runtime or system hours/minutes unless actual time was lost, such as when electronics module is replaced. Note: Product warranties are not based on these timers.
153	system.hours.low	4098			= ?	[hours mod 10000]		
154	system.hours.reset	4612			[execute]			
155	system.minutes	4099			= ?	0 – 59		
156	system.state	1059			?	WAIT READY ON FAULT.FAULT FAULT UNKNOWN	0 1 2 3 4 5	WAIT = waiting for lamps to cool READY = ready for ON command ON = at least on lamp is on FAULT = AC power must be cycled at the display to restart lamps
157	temperature.c	1153	BOARD PS LAMP INTAKE	0 1 2 3	?	0 – 125		In Celsius
158	treble	1249			= ? + –	0 – 23		
159	uart.clear	1187			[execute]			
160	uart.errors	1186			?	0 and up		
161	uart.overflows	1185			?	0 and up		
162	video.standard	17426			?	NTSC NTSC.60.443 PAL.50.358 PAL SECAM N/A	1 3 4 6 8 22	If the format is completely unknown, or it is not a video source, the response in N/A.

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
163	viewport.window.bottom	1042			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
164	viewport.window.height	1100				?			[pixels]		
165	viewport.window.left	1039			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
166	viewport.window.right	1040			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
167	viewport.window.top	1041			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
168	viewport.window.width	1099				?			[pixels]		
169	vim.installed	1160				?			0 [not installed] 1 [installed]		
170	volume	1246			=	?	+	–	0 – 51		
171	wall.column	1051			=	?	+	–	1 – 32		
172	wall.height	1049			=	?	+	–	1 – 32		
173	wall.mode	1052			=	?	+	–	DISABLE ENABLE	0 1	
174	wall.row	1050			=	?	+	–	1 – 32		

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set get inc dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
175	wall.status	1066			?	0 [ok] 1 [error horizontally] 2 [error vertically] 3 [this cube is blank]		
176	wall.width	1048			= ? + –	1 – 32		
177	white.balance	1030	RED GREEN BLUE	0 1 2	= ? + –	0 – 31		
178	white.balance	1030	ALL	3	+ –			
179	white.boost	1270			= ? + –	OFF LOW MEDIUM HIGH	0 1 8 32	White boost may affect color balance.
180	window.reset.size	1091			[execute]			Sets zoom and viewport window back to default values.
181	ypbpr.reset	1182			[execute]	[to factory calibration]		
182	zoom.window.bottom	1047			= ? + –	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
183	zoom.window.height	1098			?	[pixels]		
184	zoom.window.left	1044			= ? + –	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
185	zoom.window.right	1045			= ? + –	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	

Operation Commands for Margay

Row	Operation or String [ST]	Operation or String number	(Target) Target or Target number *must* be in parentheses.	(Target number)	Command types allowed (Use only one symbol.) set	get	inc	dec	Value If numbers listed first, use numbers only. Data in [square brackets] is for information only.	Value number	Notes
186	zoom.window.top	1046			=	?	+	–	0 [–100] : 100 [0] : 200 [+100]	0 : 100 : 200	
187	zoom.window.width	1097				?			[pixels]		

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Symbols

Operation Numbers

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27350 SW 95th Avenue, Suite 3038
Wilsonville, OR 97070-7708
Main Phone: +1 503 570 0700 • Customer Service Phone: +1 503 570 4634 • Fax: +1 503 570 4657
www.ClarityVisual.com • Service@ClarityVisual.com

clarity®
visual systems