RLS W12

Reference manual

Serial Communication (RS-232)

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BARCO

Visibly yours

Document version: 00

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1. RLS W12 SERIAL COMMUNICATION

About this chapter

This chapter contains serial commands to control the projector.

Overview

- Interface and Requirements
- Cable Type and Pin definition
- System Operation commands

1.1 Interface and Requirements

Control Command Protocol

The RS-232 Commands use only ASCII characters which can be entered using a typical terminal emulator like Windows HyperTerminal with the following setting:

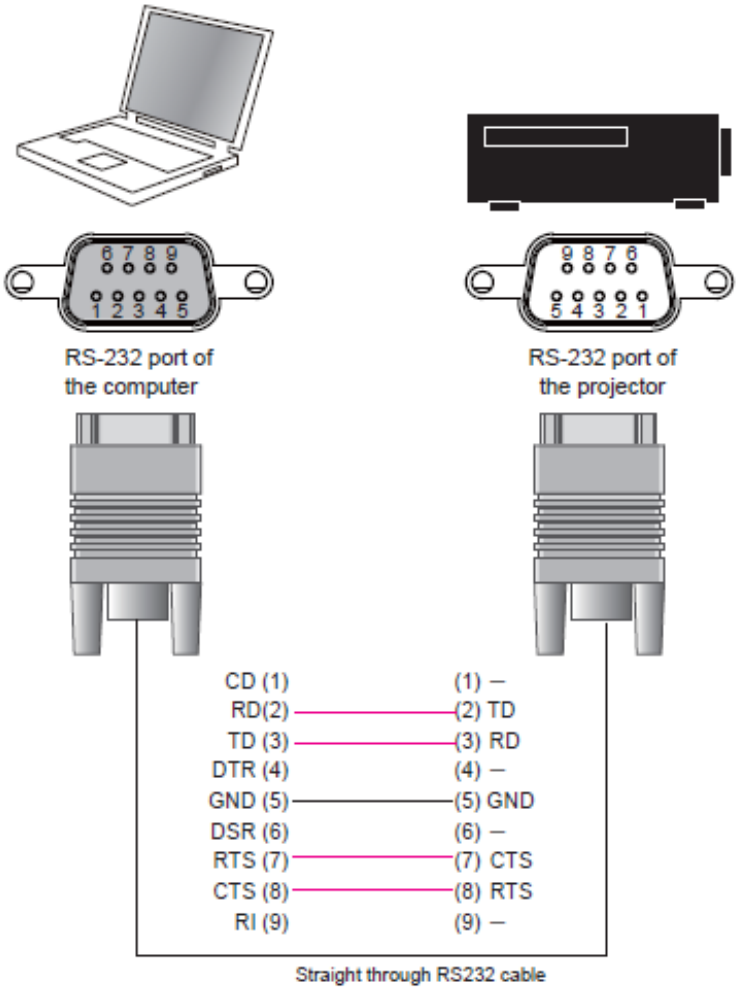
- Bits per second: 115200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

TCP/IP communication port

The TCP/IP communication port number: 43680

1.2 Cable Type and Pin definition

Diagram:



Note:

- Use Straight through RS232 cable.
- Pin 9 is reserved for service purpose only.

1.3 System Operation commands

Introduction

The Operation commands tell the projector what to do. All commands start with 2 letters: "op" for operations commands and a space [SP] then following a control command then finally the value wants to read, set, increase or decrease. All commands must end with a carriage return (ASCII hex 0D), shown as [CR] below. The syntax for operations commands is as follows:

op[SP]<operation command>[SP]<Setting Value>[CR]

For all but Execute functions the response from the projector will be the command and "= <value>" where <value> is the current value or "NA" if the value is not available. For Execute functions the response will be the same command. All responses will be in CAPS and also ending with a carriage return (ASCII hex 0D). Please refer to the following table for command list and examples:

System Operation Commands:

Operation	Commands	Values
Set	= <value>	Makes the unit take that value.
Get	?	Asks what the current 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.

Motor operation command:

For motor control like lens shift, focus and zoom, the parameters " + " and " - " are defined as follows.

Command item	command	System Action
focus	+ -	+ => Focus Near, - => Focus Far
zoomio	+ -	+ => Zoom out - => Zoom in
Vert.offset	+ -	+ => Up - => Down
horiz.offset	+ -	+ => Right - => Left
lens.center	(execute)	Midposition shift

Get operations command example:

- Input: op bright? [CR]
- System Response: OP BRIGHT = 100

Increase & Decrease operations command examples:

- Input: op bright + [CR]
- System Response: OP BRIGHT = 101
- Input: op bright - [CR]
- Response: OP BRIGHT = 126

Set operations command example:

- Input: op bright = 127 [CR]
- System Response: OP BRIGHT = 127

Execute command example:

- Input: op auto.img [CR]
- Response: OP AUTO.IMG

1.4 List of valid operations commands for Barco MSWU-81E

RLS W12 Operations Commands				
No.	**Operation**	**Commands**	**Values**	**Notes**
1	input.sel	= ?	0 = HDMI 1 = HD BaseT 2 = RGB D-15 3 = YUV 1 4 = RGBHV/YUV2 5 = Reserve (CVBS) 6 = Reserve (SVIDEO) 7 = Reserve (SCART) 8 = SDI/HDSDI/3G 9 = Reserve (STEREO DVI)	Note1 Note3
2	input.lock	= ?	0 = Auto 1 = 48 Hz 2 = 50 Hz 3 = 60 Hz	Note2
3	auto.powoff	= ?	0 = Off 1 = On	
4	auto.powon	= ?	0 = Off 1 = On	
5	no.signal	= ?	0 = Logo 1 = Blue 2 = Black 3 = White	Note1
6	auto.imgadj	= ?	0 = Off 1 = Auto 2 = Always	Note2
7	contrast	= ? + -	0 - 200	Note2
8	Bright	= ? + -	0 - 200	Note2
9	sharp	= ? + -	0 - 200	Note2
10	nr	= ? + -	0 - 200	Note2
11	color.temp	= ?	0 = 3200K 1 = 5400K 2 = 6500K 3 = 9300K 4 = Native	Note2 Note8
12	red.offset	= ? + -	0-200	Note2
13	green.offset	= ? + -	0-200	Note2
14	blue.offset	= ? + -	0-200	Note2
15	red.gain	= ? + -	0-200	Note2
16	green.gain	= ? + -	0-200	Note2
17	blue.gain	= ? + -	0-200	Note2
18	aspect	= ?	0 = 5:4 1 = 4:3 2 = 16:10 3 = 16:9 4 = 1.88 5 = 2.35 6 = Letterbox 7 = Native 8 = Unscaled	Note2 Note5

19	h.total	= ? + -	0-200	Note2 Note7
20	h.pos	= ? + -	0-200	Note2
21	h.phase	= ? + -	0-200	Note2 Note7
22	v.pos	= ? + -	0-200	Note2
23	auto.img	(execute)		Note2
24	picture.mode	= ?	0 = Bright 1 = Presentation 2 = Video 3 = RGB Only	
25	color.space2	= ?	0 = Auto 1 = YUV HD 2 = YUV STD 3 = RGB-PC (0-255) 4 = RGB-Video (16-235)	Note2
26	zoom	= ?	0 = Off 1 = Crop 2 = Zoom	Note2 Note6
27	pip.sel	= ?	1 = HDMI 1 2 = HDMI 2 3 = VGA 4 = YUV 1 5 = RGBHV/YUV2 6 = Reserve 7 = Reserve 8 = Reserve 9 = SDI/HDSDI/3G	Note1 Note9
28	pip.pos	= ?	0 = Top left 1 = Top right 2 = Bottom left 3 = Bottom right 4 = Split L-R	Note1 Note10
29	pip	= ?	0 = Off 1 = On	Note1
30	lamp.mode	= ?	0 = Economy 1 = Standard 2 = Dimming	Note2
31	lamps	= ?	0 = Single 1 = Dual	Note1 Note11
32	altitude	= ?	0 = Off 1 = On	Note1
33	lamp.pwr	= ?	W7:0(75%) ~ 20 (100%) H8:0(80%) ~ 20 (100%)	Note2
34	lamp1.stat	?	0 = Off 1 = On	Note1
35	lamp2.stat	?	0 = Off 1 = On	Note1
36	rear.proj	= ?	0 = front 1 = rear	Note1
37	ceil.mode	= ?	0 = floor 1 = ceiling	Note1
38	zoomio	+ -	+ = Zoom out - = Zoom in	Note1
39	focus	+ -	+ = Focus Near - = Focus Far	Note1
40	vert.offset	+ -	+ = Up - = Down	Note1

41	horiz.offset	+ -	+ = Right - = Left	Note1
42	dyna.cont	= ?	0 = Off 1 = On	Note2
43	gamma	= ?	0 = 1.8 1 = 2.0 2 = 2.2 3 = 2.35 4 = 2.5 5 = S-Curve (H8 only)	Note2
44	int.ptrn	= ?	0 = Off 1 = Color Bars 2 = Hatch 3 = Burst 4 = Red 5 = Green 6 = Blue 7 = White 8 = Black 9 = TI-Red 10 = TI-Green 11 = TI-Blue 12 = TI-Ramp 13 = Warping/Blending	Note1
45	color.space	= ?	0 = Native 1 = Reserve (EBU) 2 = Reserve (SMPTE) 3 = Custom	Note2
46	Lens.center	(execute)		Note1
47	h.keystone	= ? + -	-350~+350	Note1 Note15
48	v.keystone	= ? + -	-200~+200	Note1 Note15
49	warp.rotat	= ? + -	-20 ~ +20 (in ¼° unit)	
50	warp.pinbrl	= ? + -	-100 ~ +100	
51	warp.tlc.x	= ? + -	‘x: -192 ~ +192	
52	warp.tlc.y		‘y: -120 ~ +120	
53	warp.trc.x	= ? + -	‘x: -192 ~ +192	
54	warp.trc.y		‘y: -120 ~ +120	
55	warp.blc.x	= ? + -	‘x: -192 ~ +192	
56	warp.blc.y		‘y: -120 ~ +120	
57	warp.brc.x	= ? + -	‘x: -192 ~ +192	
58	warp.brc.y		‘y: -120 ~ +120	
59	warp.reset	(execute)		
60	w2.recover	(execute)		
61	blank.top	= ? + -	0 ~ 360	
62	blank.btm	= ? + -	0 ~ 360	
63	blank.left	= ? + -	0 ~ 534	
64	blank.right	= ? + -	0 ~ 534	

65	blank.rst	(execute)		
66	scen.stat	= ?	0 = Off 1 = On	
67	scen.wht.top			
68	scen.wht.btm	= ? + -	0 ~ 500	
69	scen.wht.left			
70	scen.wht.right	= ? + -	0 ~ 800	
71	scen.blk.top			
72	scen.blk.btm	= ? + -	0 ~ 32	
73	scen.blk.left			
74	scen.blk.right	= ? + -	0 ~ 32	
75	scen.red	= ? + -	0 ~ 32	
76	scen.green	= ? + -	0 ~ 32	
77	scen.blue	= ? + -	0 ~ 32	
78	scen.all	= ? + -	0 ~ 32	
79	scen.reset	(execute)		
80	scen.adl	= ?	0 = Off 1 = On	
81	brilliant.blend	= ?	0 = Off 1 = On	
82	ir.addr	= ?	0 = remote code 1 1 = remote code 2	
83	eco.net.pow	= ?	0 = Off (RJ45 Power On) 1 = On (RJ45 Power Off)	
84	net.ipaddr	= ?		
85	net.subnet	= ?		
86	net.gateway	= ?		
87	net.dhcp	= ?	0 = Off 1 = On	
88	menu.pos	= ?	0 = Top left 1 = Top right 2 = Bottom left 3 = Bottom right 4 = center	Note1
89	startup.logo	= ?	0 = Off 1 = On	
90	startup.chime	= ?	0 = Off 1 = On	
91 92 93 94 95	btn.1 btn.2 btn.3 btn.4 btn.5	= ?	0 = HDMI 1 = HD BaseT 2 = VGA 3 = YUV 1 4 = RGBHV/YUV2 5 = Reserve (CVBS) 6 = Reserve (SVIDEO) 7 = Reserve (SCART) 8 = SDI/HDSDI/3G 9 = Reserve (STEREO DVI)	

96	trig.1	= ?	0 = 5:4 1 = 4:3 2 = 16:10 3 = 16:9 4 = 1.88 5 = 2.35 6 = Letterbox 7 = Native 8 = Unscaled 9 = Auto	Note1
97	trig.2	= ?	0 = 5:4 1 = 4:3 2 = 16:10 3 = 16:9 4 = 1.88 5 = 2.35 6 = Letterbox 7 = Native 8 = Unscaled 9 = Auto	Note1
98	auto.src	= ?	0 = Off 1 = On	Note1
99	lang	= ?	0 = English 1 = French 2 = Spanish 3 = German 4 = Portuese 5 = Chinese Simplified 6 = Chinese Traditional 7 = Japanese 8 = Korean 9 = Russian	
100	model	?		
101	ser.no	?		
102	sw.ver	?		Note13
103	act.src	?	0 = HDMI 1 1 = HDMI 2 2 = VGA 3 = YUV 1 4 = RGBHV/YUV2 5 = Reserve 6 = Reserve 7 = Reserve 8 = SDI/HDSDI/3G	Note1
104	pip.src	?	0 = HDMI 1 1 = HDMI 2 2 = VGA 3 = YUV 1 4 = RGBHV/YUV2 5 = Reserve 6 = Reserve 7 = Reserve 8 = SDI/HDSDI/3G	Note1
105	pixel.clock	?		Note2
106	signal	?		Note2
107	h.refresh	?		Note2

108	v.refresh	?		Note2
109	lamp1.hours	?		
110	lamp2.hours	?		
111	lamp1.reset	(execute)		
112	lamp2.reset	(execute)		
113	proj.runtime	?		
114	blue.only	= ?	0 = Off 1 = On	Note1
115	fact.reset	(execute)		
116	CS_cust_Rx	= ?	000 ~ 999	Note1
117	CS_cust_Ry	= ?	000 ~ 999	Note1
118	CS_cust_Gx	= ?	000 ~ 999	Note1
119	CS_cust_Gy	= ?	000 ~ 999	Note1
120	CS_cust_Bx	= ?	000 ~ 999	Note1
121	CS_cust_By	= ?	000 ~ 999	Note1
122	CS_cust_Wx	= ?	000 ~ 999	Note1
123	CS_cust_Wy	= ?	000 ~ 999	Note1
124	CS_cust_Cx	= ?	000 ~ 999	Note1
125	CS_cust_Cy	= ?	000 ~ 999	Note1
126	CS_cust_Mx	= ?	000 ~ 999	Note1
127	CS_cust_My	= ?	000 ~ 999	Note1
128	CS_cust_Yx	= ?	000 ~ 999	Note1
129	CS_cust_Yy	= ?	000 ~ 999	Note1
130	picture.mute	= ?	0 = Off 1 = On	
131	power.on	(execute)		
132	power.off	(execute)		
133	text.mode	= ?	0 = Off 1 = On	
134	status	?	0 = standby 1 = warm up 2 = imaging 3 = cooling 4 = warning	
135	errcode	?	0000 ~ FFFF (2 bytes information in hexadecimal format)	
136	moto.ver	?		Note16

REMARK:

An input command will get back with "NA" when the input command is "Not Applicable" in some specific conditions.

Note1: Not applicable in standby mode.

Note2: Not applicable in standby mode or without signal locked.

Note3: Not applicable when picture mute is on.

Note4: Only valid when source is one of Composite, S-Video and RGB-S.

Note5: Native aspect ratio is not applicable when zoom is set to "Zoom", Letterbox aspect ratio is not applicable when the input format is one of formats as listed in appendix 2.

Note6: Selection "Zoom" is not applicable when aspect ratio is set to Native.

Note7: Only applicable when source is one of RGB D-15, YUV1 and RGBHV/YUV2.

Note8: Not applicable when color space is set to custom.

Note9: pip.sel can NOT be set to 0.

Note10: Not applicable when pip is off.

Note11: Not applicable when lamp is cooling.

Note12: Not applicable when eco.net.pow is on.

Note13: Only MCU version number will be read back in standby mode.

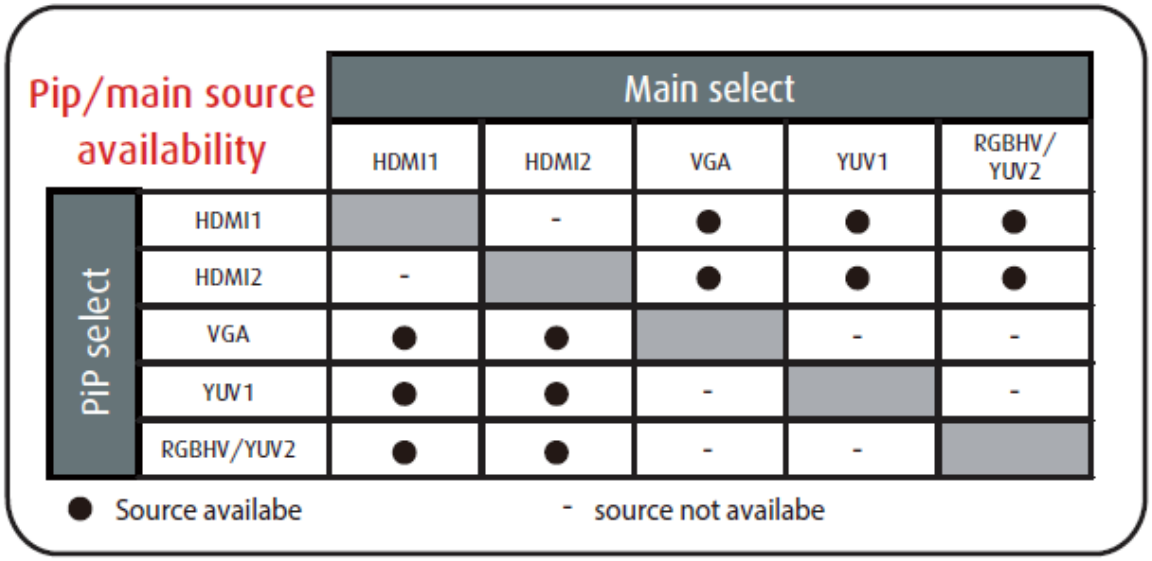
Note14: Not applicable when the internal pattern is displayed.

Note15: The summation of the absolute value of h.keystone and v.keystone should not be greater than 350.

Note16: The comment is for Motor Software check.

1.5 Appendix

1.5.1 Pip/main source availability



1.5.2 Input Format :

- 640x480_75Hz_VGA:
- 640x480_85Hz_VGA:
- 800x600_75Hz_SVGA:
- 800x600_85Hz_SVGA:
- 1024x768_75Hz_XGA:
- 1024x768_85Hz_XGA:
- 1280x1024_75Hz_SXGA:
- 1280x1024_85Hz_SXGA:
- 1400x1050_75Hz