



RS232 Protocol Function List

Baud Rate : 19200
 Data Bits: 8
 Parity: None
 Stop Bits: 1
 Flow Control : None
 UART16550 FIFO: Disable

Note: It supports data rates from 9600 to 115200 bps. The default is 19200 bps. Depending on the equipment, a lower baud rate may be recommended for long cable runs.

Write Command

~	X	X	X	X	X		n	CR
Lead Code	Projector ID		Command			space	variable	carriage return
Prefix	00~99 (00: All projectors)		000~999				0~9999	suffix

Response Format

Pass: Fail:

Read Command

~	X	X	X	X	X		n	CR
Lead Code	Projector ID		Command			space	variable	carriage return
Prefix	00~99 (00: All projectors)		000~999				0~9999	suffix

Response Format

Pass: Fail:

System Automatically Send

I	N	F	O	n
				variable

Note: There is a <CR> after all ASCII commands. 0D is the HEX code for <CR> in ASCII code.

Character to HEX table

Character	HEX
~	7E
0	30
1	31
2	32
3	33
4	34
5	32
6	36
7	37
8	38
9	39
Space	20
CR (Enter)	0D

e.g.

ASCII to HEX

RS232 Command	~	0	0	1	9	5		1	CR
HEX	7D	30	30	35	39	35	20	31	0D

Level 1	Level 2	Level 3	Level 4	Write CMD					Set Parameter	Optoma Read CMD					Read Parameter	Reply Parameter			
PICTURE	Display Mode	Presentation							1								1		
		Video							3								3		
		Bright							2	~	X	X	1	2	3	1	O k	2	
		DICOM SIM						0	13									13	
		Blending							4									4	
		User							5									5	
		Save to User																	
	Brightness	0 ~ 100			~	X	X	2	1	0 ~ 100	~	X	X	1	2	5	1	O k	%
	Contrast	0 ~ 100			~	X	X	2	2	0 ~ 100	~	X	X	1	2	6	1	O k	%
	Sharpness	0 ~ 4			~	X	X	2	3	0 ~ 4									
	Color	0 ~ 100			~	X	X	4	5	0 ~ 100									
	Tint	0 ~ 100			~	X	X	4	4	0 ~ 100									
	Phase	0 ~ 100			~	X	X	7	4	0 ~ 100									
	Frequency	0 ~ 100			~	X	X	7	3	0 ~ 100									
	Horz Position	0 ~ 100			~	X	X	7	5	0 ~ 100									
	Vert Position	0 ~ 100			~	X	X	7	6	0 ~ 100									
	Auto Image				~	X	X	0	1	1									
	Color Matching	Enable	Off		~	X	X	4	1	0	0 & 2								
			On								1								
		Auto Test Pattern	Off		~	X	X	4	1	1	0 & 2								
			On								1								
		Red Part of Red	0 - 1000		~	X	X	4	1	2	(0 ~ 1000)								
		Green Part of Red	0 - 1000		~	X	X	4	1	3	(0 ~ 1000)								
		Blue Part of Red	0 - 1000		~	X	X	4	1	4	(0 ~ 1000)								
		Green Part of Green	0 - 1000		~	X	X	4	1	5	(0 ~ 1000)								
		Red Part of Green	0 - 1000		~	X	X	4	1	6	(0 ~ 1000)								
		Blue Part of Green	0 - 1000		~	X	X	4	1	7	(0 ~ 1000)								
Blue Part of Blue		0 - 1000		~	X	X	4	1	8	(0 ~ 1000)									
Red Part of Blue		0 - 1000		~	X	X	4	1	9	(0 ~ 1000)									
Green Part of Blue		0 - 1000		~	X	X	4	2	0	(0 ~ 1000)									
Red Part of White	0 - 1000		~	X	X	4	2	1	(0 ~ 1000)										
Green Part of White	0 - 1000		~	X	X	4	2	2	(0 ~ 1000)										

Note: Some commands are not supported depending on the model.

Level 1	Level 2	Level 3	Level 4	Write CMD			Set Parameter	Optoma Read CMD			Read Parameter	Reply Parameter									
PICTURE	Color Matching	Blue Part of White	0 - 1000	~	X	X	4	2	3	(0 ~ 1000)											
		Reset to Default	No	~	X	X	2	1	5	0 & 2											
	Yes								1												
	Advanced	White Peaking	0 - 100																		
		Gamma	Video								2										
			Film								1										
			Bright	~	X	X	3	5			12										
			CRT								13										
			DICOM								11										
			Gamma 2.2								7										
		Color Temperature	Warmest								1			1							
			Warm	~	X	X	3	6			2	~	X	X	1	2	8	1	O	k	2
			Cool								3										3
			Bright								5										7
		Color Space	RGB									2									
			REC709									5									
			REC601	~	X	X	3	7				6									
			RGB Video									4									
			Auto									1									
		Color Settings	Red Gain	~	X	X	2	4				0 ~ 100									
			Green Gain	~	X	X	2	5				0 ~ 100									
			Blue Gain	~	X	X	2	6				0 ~ 100									
			Red Offset	~	X	X	2	7				0 ~ 100									
			Green Offset	~	X	X	2	8				0 ~ 100									
			Blue Offset	~	X	X	2	9				0 ~ 100									
			Reset RGB Gain/Offset	~	X	X	5	1	7			1									
	Color Enhancement	0 ~ 2																			
	Film Mode	Off																			
		On																			
	Extreme Black	Off																			
On																					

Note: Some commands are not supported depending on the model.

Level 1	Level 2	Level 3	Level 4	Write CMD				Set Parameter	Optoma Read CMD				Read Parameter	Reply Parameter				
OUTPUT	Aspect Ratio	Auto						7								7		
		4:3		~	X	X	6	0	1	~	X	X	1	2	7	1	O k	
		16:10							3							3		
		Native							6							6		
	Overscan	Off																
		On																
	H Digital Zoom	50% ~ 400%		~	X	X	5	0	4	50 ~ 400								
	V Digital Zoom	50% ~ 400%		~	X	X	5	0	5	50 ~ 400								
	H Digital Shift	0 ~ 100		~	X	X	6	3		0~100								
	V Digital Shift	0 ~ 100		~	X	X	6	4		0~100								
	Image Warping	H Keystone	0 ~ 40		~	X	X	6	5		0 ~ 40							
		V Keystone	0 ~ 40		~	X	X	6	6		0 ~ 40							
		H Pincushion	0 ~ 100		~	X	X	3	0	0	0 ~ 100							
		V Pincushion	0 ~ 100		~	X	X	3	0	1	0 ~ 100							
	PIP/PBP Enable	Off								0								
		On		~	X	X	3	0	2	1								
	Main Source	VGA								5							2	
		HDMI								1							7	
		Component		~	X	X	1	2		14	~	X	X	1	2	1	11	O k
		HDBaseT								21							16	
		DVI-D								2							1	
	Sub Source	VGA								2							2	
		HDMI								1							7	
		Component		~	X	X	3	0	5	3	~	X	X	1	3	1	11	O k
		HDBaseT								9							16	
		DVI-D								10							1	
	Swap			~	X	X	3	0	6									
	Size	Small								3								
		Medium		~	X	X	3	0	4	2								
		Large								1								

Note: Some commands are not supported depending on the model.

Level 1	Level 2	Level 3	Level 4	Write CMD					Set Parameter	Optoma Read CMD					Read Parameter	Reply Parameter
OUTPUT	PIP/PBP	Layout	PBP, Main Left	~	X	X	3	0	3	5						
			PBP, Main Top							6						
			PBP, Main Right							7						
			PBP, Main Bottom							8						
			PIP-Bottom Right							4						
			PIP-Bottom Left							3						
			PIP-Top Left							1						
			PIP-Top Right							2						
SETUP	Language	English	~	X	X	7	0		1							
		French							3							
		Spanish							5							
		German							2							
		Italian							4							
		Russian							17							
		Chinese Simplified							14							
		Japanese							15							
		Korean							16							
		Ceiling Mount							Off							~
	On		1													
	Auto		3													
	Rear Projection	Off	~	X	X	5	1	4	0 & 2							
		On							1							
	Lens Function	Focus	~	X	X	3	0	8								
		Zoom							7							
		Lens Shift							4							
		Lens Calibration							Yes/No (Dialog box)							1
		Lens Lock							No							2
	Yes		1													
	Menu Preferences	Menu Transparency	0 ~ 9	~	X	X	5	2	6	0 ~ 9						
		Show Messages	Off							0 & 2						
			On							1						

Note: Some commands are not supported depending on the model.

Level 1	Level 2	Level 3	Level 4	Write CMD	Set Parameter	Optoma Read CMD	Read Parameter	Reply Parameter				
SETUP	Keypad LED Settings	Off										
		On										
	Pin	Pin Protect	Off	~	X	X	5	2	7	00000-99999		
		On										
		Change PIN										
	Communications	LAN	DHCP									
			IP Address									
			Subnet Mask									
			Default Gateway									
			MAC Address									
			Apply									
		WLAN	Enable									
			Start IP									
			End IP									
			Subnet Mask									
			Default Gateway									
			MAC Address									
			SSID									
		Network	Projector Name									
			Restart Network									
			Network Factory Reset									
		Serial Port Baud Rate	9600									
			14400									
			19200									
			38400									
			57600									
			115200									

Note: Some commands are not supported depending on the model.

Level 1	Level 2	Level 3	Level 4	Write CMD					Set Parameter	Optoma Read CMD					Read Parameter	Reply Parameter	
SETUP	Communications	Serial Port Path	RS232														
			HDBaseT														
		Projector Address	0 - 99	~	X	X	7	9		(00 ~ 99)							
OPTION	Auto Source	Off		~	X	X	1	0	0	1							
		On								0 & 2							
	High Altitude	Off		~	X	X	1	0	1	0 & 2							
		On								1							
	Test Pattern	Off								0							
		Grid								1							
		Red								5							
		Green								6							
		Blue		~	X	X	1	9	5	7							
		Yellow								8							
		Magenta								9							
		Cyan								10							
		White								2							
		Black								11							
		Background Color	Logo								7						
	Blue			~	X	X	1	0	4	1							
	Black									2							
	White									5							
	Hot-Key settings	Blank Screen															
		Aspect Ratio															
		Freeze Screen															
		Overscan															
	Power Settings	Standby Power Mode	0.5W mode		~	X	X	1	1	4	1						
			Communication mode								0 & 2						
		Direct Power On	Off		~	X	X	1	0	5	0 & 2						
			On								1						

Note: Some commands are not supported depending on the model.

Level 1	Level 2	Level 3	Level 4	Write CMD						Set Parameter	Optoma Read CMD						Read Parameter	Reply Parameter	
OPTION	Power Settings	Auto Power Off	No							0									
			5 Mins							5									
			10 Mins							10									
			15 Mins	~	X	X	1	0	6	15									
			20 Mins							20									
			25 Mins							25									
			30 Mins							30									
		Sleep Timer	No							0									
			2 Hours	~	X	X	1	0	7	120									
			4 Hours							240									
			6 Hours							360									
		Light Source Settings	Light Source Mode	Constant Power															
				Constant Luminance															
				Eco Mode															
	Constant Power Settings		0 - 10	~	X	X	3	2	6	(0~10)									
	Constant Luminance Settings		0 - 10	~	X	X	5	2	2	(0~10)									
		Total Projector Hours																	
	Light Sensor	Light Sensor Calibration																	
		Calibrated?	(Display Yes/No)																
	Information	Model Name								~	X	X	1	5	1	1	O	k	#
		Serial Number								~	X	X	3	5	3	1	O	k	#
		Native Resolution								~	X	X	1	5	0	2	O	k	#
		Firmware								~	X	X	1	2	2	1	O	k	#

Note: Some commands are not supported depending on the model.

Level 1	Level 2	Level 3	Level 4	Write CMD	Set Parameter	Optoma Read CMD	Read Parameter	Reply Parameter	
OPTION	Information	Main Source					3	O k #	
		- Resolution					4	O k #	
		- Signal Format					5	O k #	
		- Pixel Clock					6	O k #	
		- Horz Refresh					7	O k #	
		- Vert Refresh					8	O k #	
		Sub Source					~ X X 1 5 0	9	O k #
		- Resolution						10	O k #
		- Signal Format						11	O k #
		- Pixel Clock						12	O k #
		- Horz Refresh						13	O k #
		- Vert Refresh						14	O k #
		Light Source Mode						15	O k #
		Total Projector Hours					~ X X 1 0 8	1	O k #
		Standby Power Mode					~ X X 1 5 0	16	O k #
		IP Address					~ X X 8 7	3	O k *** ** _ _ ** **
		DHCP					~ X X 1 5 0	17	O k #
	System Temperature					~ X X 1 5 0	18	O k #	
	Factory Reset	Yes/No (Dialog box)			~ X X 1 1 2	1			
	Service								

Note: Some commands are not supported depending on the model.

Other Uart Command

Item	Command	Range or Explanation	Description	Write CMD			Set Parameter			Optoma Read CMD			Read Parameter	Reply Parameter					
Filter Wheel Index	[FIDX***]	0 ~ 719		~	X	X	5	2	8	0~719	~	X	X	5	3	0	1	O k	%
Phosphor Wheel Index	[PIDX***]	0 ~ 719		~	X	X	5	2	9	0 ~ 719	~	X	X	5	3	1	1	O k	%
Power	POWR Off	0 ~ 1		~	X	X	0	0		0&2	~	X	X	1	2	4	1	O k	0
	POWR0 On			1	1														
AV Mute	AV Mute Disable	0 ~ 1		~	X	X	3	2	5	0&2	~	X	X	3	5	5	1	O k	0
	AV Mute Enable			1	1														
Freeze Screen	Unfreeze Screen	0 ~ 1		~	X	X	0	4		0&2									
	Freeze Screen			1															
Key input	Power On		simulate Key input, the value is Key Code For example : [KEYG2] is input Power Off Key [KEYG27] is input Menu key	~	X	X	1	4	0	1									
	Power Off									50									
	1									51									
	2									52									
	3									53									
	4									54									
	5									55									
	6									56									
	7									57									
	8									58									
	9									59									
	Info									40									
	0									60									
	Mode									36									
	Auto									41									
	Input									46									
	Up									10									
	Left									11									
	Enter									12									
	Right									13									
Down	14																		
Menu	20																		

Note: Some commands are not supported depending on the model.

Item	Command	Range or Explanation	Description	Write CMD				Set Parameter	Optoma Read CMD	Read Parameter	Reply Parameter																
Key input	Exit		simulate Key input, the value is Key Code For example : [KEYG2] is input Power Off Key [KEYG27] is input Menu key	~	X	X	1	4	0	72																	
	Gamma									61																	
	Bright									19																	
	Cont.									62																	
	PIP									63																	
	Lens H(Left)									64																	
	Lens H(Right)									65																	
	Focus(Up)									34																	
	Lens V(Up)									66																	
	Lens V(Down)									67																	
	Focus(Down)									35																	
	Keystone H(Left)									68																	
	Keystone H(Right)									69																	
	Zoom(Up)									32																	
	Keystone V(Up)									15																	
	Keystone V(Down)									16																	
	Zoom(Down)									33																	
	Shutter(AV Mute)									24																	
	Hot Key									70																	
	Pattern									71																	
Focus in	Focus in - motor stop	0 ~ 2		~	X	X	3	0	8																		
	Focus in - motor go step									1																	
	Focus in - motor run																										
Focus out	Focus out - motor stop	0 ~ 2		~	X	X	3	0	8																		
	Focus out - motor go step									2																	
	Focus out - motor run																										
Zoom in	Zoom in - motor stop	0 ~ 2		~	X	X	3	0	7																		
	Zoom in - motor go step									1																	
	Zoom in - motor run																										
Zoom out	Zoom out - motor stop	0 ~ 2		~	X	X	3	0	7																		
	Zoom out - motor go step									2																	
	Zoom out - motor run																										

Note: Some commands are not supported depending on the model.

Item	Command	Range or Explanation	Description	Write CMD				Set Parameter	Optoma Read CMD	Read Parameter	Reply Parameter						
Lens Shift Up	Left shift up - motor stop	0 ~ 2		~	X	X	8	4									
	Left shift up - motor go step								3								
	Left shift up - motor run																
Lens Shift Down	Left shift down - motor stop	0 ~ 2															
	Left shift down - motor go step								4								
	Left shift down - motor run																
Lens Shift Right	Left shift right - motor stop	0 ~ 2															
	Left shift right - motor go step								6								
	Left shift right - motor run																
Lens Shift Left	Left shift left - motor stop	0 ~ 2															
	Left shift left - motor go step								5								
	Left shift left - motor run																
PIN Protect	[PINP"12345"]	*****	"12345" is current PIN code. When PIN protect is off , input this command will turn PIN protect on , and vice versa.	~	X	X	5	2	7	0000~9999							
Change PIN	[PINC"12345,67890"]	***** *****	The former 5 digits "12345" is old PIN code, and the later 5 digits "67890" is new PIN code you want to set.														
IP Address	[LIPA"192.168.000.100"]	***.***.***.***	All network address string is need to input 15 digits							~	X	X	8	7	3	O k	***.***.***.***

Note: Some commands are not supported depending on the model.

Error Message

Item	Command	Range or Explanation	Description	Note	Write CMD					
Error Message	Standby mode		Projector goto standby mode	Query command will reply all Error messages in system	R e p l y A u t o m a t i c a l l y	I	N	F	O	0
	Warming up		Projector warming up							1
	Cooling Down		Projector cooling down							2
	Out of range		Signal out of range							3
	Lamp hours running out		Lamp hours running out							8
	Lamp Ignite Fail		Laser fail to ignite							10
	Format Board Power On Fail		Format board fail to power on and projector auto shutdown							11
	Color Wheel Unexpected Stop		Color wheel unexpected stop and projector auto shutdown							12
	Over Temperature		System over temperature and projector auto shutdown							13
	FAN 1 Lock		Fan 1 failure and projector auto shutdown							14
	FAN 2 Lock		Fan 2 failure and projector auto shutdown							15
	FAN 3 Lock		Fan 3 failure and projector auto shutdown							16
	FAN 4 Lock		Fan 4 failure and projector auto shutdown							17
	FAN 5 Lock		Fan 5 failure and projector auto shutdown							18
	LAN fail then restart		Network communication failure and projector auto restart network							19
	LD lower than 60%		Available laser diodes is less than 60%							20
	LD NTC (1) Over Temperature		Laser bank 1 over temperature and projector auto shut down							21
	LD NTC (2) Over Temperature		Laser bank 2 over temperature and projector auto shut down							22
	High Ambient Temperature		High ambient temperature and projector auto dim to protect laser							23
	System Ready		System ready							24

Note: Some commands are not supported depending on the model.

