



# 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	35
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	7E	30	30	31	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							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	~	X	X	3	6			1							1					
			Warm								2			~	X	X	1	2	8	1	O	k	2
			Cool							3			3										
			Bright							5			7										
		Color Space	RGB	~	X	X	3	7			2												
		Color Space	REC709								5												
			REC601								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	~	X	X	5	1	3	0 & 2							
		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)									
	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									1									
	Power Off									50									
	1									51									
	2									52									
	3									53									
	4									54									
	5									55									
	6									56									
	7									57									
	8									58									
	9									59									
	Info				~	X	X	1	4	0									
	0										40								
	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 <b>Key Code</b> For example : [KEYG2] is input <b>Power Off Key</b> [KEYG27] is input <b>Menu</b> 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 <b>off</b> , input this command will turn PIN protect <b>on</b> , 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.

