

ViewSonic[®]



Projector RS-232/LAN Control Protocol

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1 Introduction

This document describes the hardware interface spec and software protocols of RS232 interface communication between ViewSonic Projectors and Control unit, such as PC and AMX controller, with RS232 protocol.

The protocol contains three sections command:

- Write-Function
- Read-Function
- Execute-Function

2 Description

2.1 Hardware specification

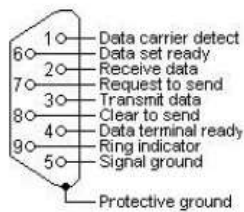
Viewsonic Projector communication port on the rear side

(1) Connector type: DSUB 9-Pin

(2) Pin Assignment :

- > Male DSUB 9-Pin (outside view)

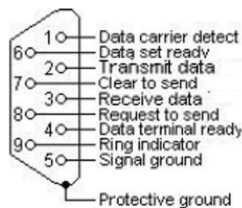
- Control Port



Pin	Description	Pin	Description
1	NC	2	RX
3	TX	4	NC
5	GND	6	NC
7	RTSZ	8	CTSZ
9	NC		

- > Female DSUB 9-Pin (outside view)

- Control Port



Pin	Description	Pin	Description
1	NC	2	TX
3	RX	4	NC
5	GND	6	NC
7	CTSZ	8	RTSZ
9	NC		

Note:

1. Use of crossover (null modem) cable required for use with control device if needed.
2. Only 3 pins connection needed for control communication.

For example, below is for Male DSUB 9-Pin

Pin #	Signal	Remark
2	RXD	
3	TXD	
5	GND	

2.2 Communication Setting

RS-232 protocol	Value
Baud Rate	19200 bps (default)
Data Length	8 bit
Parity Check	None
Stop Bit	1 bit
Flow Control	None

Note: Baud rate can support : 4800/9600/19200/38400

2.3 Command Message Reference

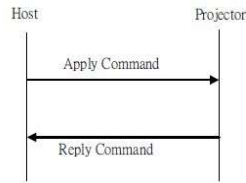
Control unit sends to projector command packet followed by checksum. Every time Control unit sends control command to the projector, the projector shall respond.

The RS232 format for each command is listed below

	BYTE 0	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8-N+7	BYTE N+8		
Write Packet	0x06	0x14	0x00	LSB	MSB	0x34	cmd2	cmd3	data	checksum		
	BYTE 0	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8	BYTE 9	BYTE 10-N+	BYTE N+10
Read Packet	0x07	0x14	0x00	LSB	MSB	0x34	0	0	cmd2	cmd3	data	checksum
	BYTE 0	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5						
Write Response Packet	0x03	0x14	0x00	0x00	0x00	checksum (1BYTE)						
	BYTE 0	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8			
Read Response Packet	0x05	0x14	0x00	LSB	MSB	0x00	0x00	data	checksum (1BYTE)			

3 Protocol / Command

The communication flow is demonstrated below, which “Host” is the control unit:



Apply Command	write	Set data, Indicate
	read	Get data
Reply Command	write response	
	read response	Return Packing for reading
	ACK	

3.1 Command description

The Control unit can control the projector for specific actions. The Write-Function command allows you to control the projector behavior in a remote site through the RS232 port. The Write-Function packet format is followed below RS232 format.

	BYTE 0	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8-N+7	BYTE N+8
Write Packet	0x06	0x14	0x00	LSB	MSB	0x34	cmd2	cmd3	data	checksum

Write-Function description:

Write Packet		
Command Head	BYTE 0 (cmdt)	0x06
	BYTE 1	0x14
	BYTE 2	0x00
	BYTE 3 (LSB)	0x04
	BYTE 4 (MSB)	0x00
Command Payload	BYTE 5	0x34
	BYTE 6	Cmd2
	BYTE 7	Cmd3
	BYTE 8	data
Packet CkSum	BYTE 9	checksum

Read-Function format:

Read Packet		
Command Head	BYTE 0 (cmdt)	0x07
	BYTE 1	0x14
	BYTE 2	0x00
	BYTE 3 (LSB)	0x05
	BYTE 4 (MSB)	0x00
Command Payload	BYTE 5	0x34
	BYTE 6	0
	BYTE 7	0
	BYTE 8	Cmd2
Packet CkSum	BYTE 9	Cmd3
	BYTE 10	checksum

【Command Detail】

<1> LSB,MSB (Length)

LSB =Length (low byte). Number of bytes in this command, beginning with “BYTE5” except for “Checksum”.

MSB =Length (high byte). Number of bytes in this command, beginning with “BYTE5” except for “Checksum”.

Reply format:

Write Response Packet (or ACK Packet)		
Command Head	BYTE 0	0x03
	BYTE 1	0x14
	BYTE 2	0x00
	BYTE 3	0x00
	BYTE 4	0x00
Packet CkSum	BYTE 5	0x14

Read Response Packet(1 byte)		
Command Head	BYTE 0	0x05
	BYTE 1	0x14
	BYTE 2	0x00
	BYTE 3	LSB
	BYTE 4	MSB
Command Payload	BYTE 5	0
	BYTE 6	0
	BYTE 7	data
Packet CKSum	BYTE 8	checksum

Read Response Packet(2 byte) Follow TI rule		
Command Head	BYTE 0	0x05
	BYTE 1	0x14
	BYTE 2	0x00
	BYTE 3	LSB
	BYTE 4	MSB
Command Payload	BYTE 5	0
	BYTE 6	data(LSB)
	BYTE 7	data(HSB)
Packet CKSum	BYTE 8	checksum

Note: There are two formats for the response packet, one byte and two bytes, shown above.

No.	Function	Type	Action	Command	Response	The response of Query Read command
Factory Mode						
1	Reset to Factory Default	Write	Reset to Factory Default	0x06 0x14 0x00 0x03 0x00 0x34 0x0C 0x08 0x5F	0x03 0x14 0x00 0x00 0x00 0x14	Note 9.
2	LAN Reset	Write	Reset to Factory Default	0x06 0x14 0x00 0x04 0x00 0x34 0x0C 0x5A 0x00 0xB2	0x03 0x14 0x00 0x00 0x00 0x14	

Note: (The content of the notes may vary depending on the model)

1. Operating temperature value format:

Response : 0x05 0x14 0x00 0x0A 0x00 0x00 0x00 0x29 0x01 0x00 0x00 0x00 0x00 0x00 0x48(checksum)

Value : Byte7~Byte10

0xaa 0xbb 0xcc 0xdd -> HEX2DEC(ddccbbaa)/10 -> real temperature degree

Ex. "0x29 0x01 0x00 0x00" -> 0x00000129 =297 -> 29.7 °C .

Note: the order of first byte 0x05 is 0.

2. For the LAN control, the code format is similar except that to replace the "0x" to "\", via a LAN Port 4661.

Exception: For Pro9 series, the RS232 control code need to refer to Users Manual and the LAN Port is 23.

3. Error response status : (Only for service debug) :

Response : 0x05 0x14 0x00 0x16 0x00 0x00 0x00 ErrorStatus(20 Items) checksum

1. Item 1 ~17: 1 byte.
2. Item 18 : First burn In error minutes, 4 Bytes.
3. Item 19: Light source mode Status, 1 Byte.
4. Item 20: Light source mode error status, 2 Bytes.

Total : 32 Bytes .

4. Light Source Usage Time status response value format:

Response : 0x05 0x14 0x00 0x06 0x00 0x00 0x00 0xB8 0x0B 0x00 0x00 0xDD (checksum)

Value : Byte7~Byte10

0xaa 0xbb 0xcc 0xdd -> HEX2DEC(ddccbbaa) -> real temperature degree

Ex. "0xB8 0x0B 0x00 0x00" -> 0x00000BB8 =3000(DEC) -> 3000 hrs .

Note: The first byte "0x05" is order 0, Byte0.

5. When the projector response the code "0x00 0x14 0x00 0x00 0x00 0x14" at the first byte "0x00", it indicates that function is disable (grey out).

For example, when there are no source inputs to projector, the function "Aspect Ratio" is greyed out and can't be controlled by user via OSD menu or RC.

6. HDMI Range:

- Enhanced / Full = 0 – 255 steps
- Normal / Limited = 16 -235 steps

7. Status explanation:

Power On: System is finished all HW/FW settings and ready to work.

Warm Up: System is at initial stage to set and check HW/FW environment. Please do not perform other commands.

Cool Down: System is at final stage to close HW/FW environment. Please do not perform other commands.

Power Off: System is turned off, please set LAN control settings/Standby LAN Control to "ON" for reboot the projector by LAN.

*This command is only applied to particular models, please refer to User Guide.

8. The "Mute" function is only active when there is an input source applied.

The "Auto Adjust" function is only active when there is an input source of non-digital type applied, such as VGA/Computer I/D-sub.

9. Reset to Factory Default:

User has to reboot the projector to clear the parameters

3.2 RS232 Command list

No.	Function	Type	Action	Command	Response	The response of Query Read command
1	Power	Write	ON	06 14 00 04 00 34 11 00 00 5D	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
2	Power	Write	OFF	06 14 00 04 00 34 11 01 00 5E	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
3	Power	Read	Status (Note 7)	07 14 00 05 00 34 00 00 11 00 5E	Power off: 05 14 00 03 00 00 00 00 17	
					Power on : 05 14 00 03 00 00 00 01 18	
					Warm up : 05 14 00 03 00 00 00 02 19	
					Coll down: 05 14 00 03 00 00 00 03 1A	
4	Splash Screen	Write	Black	06 14 00 04 00 34 11 0A 00 67	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
5	Splash Screen	Write	Blue	06 14 00 04 00 34 11 0A 01 68	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
6	Splash Screen	Read	Status	07 14 00 05 00 34 00 00 11 0A 68	05 14 00 03 00 00 00 02 19	
7	Quick Power Off	Write	OFF	06 14 00 04 00 34 11 0B 00 68	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
8	Quick Power Off	Write	ON	06 14 00 04 00 34 11 0B 01 69	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
9	Quick Power Off	Read	Status	07 14 00 05 00 34 00 00 11 0B 69	05 14 00 03 00 00 00 00 17	
10	High Altitude Mode	Write	OFF	06 14 00 04 00 34 11 0C 00 69	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
11	High Altitude Mode	Write	ON	06 14 00 04 00 34 11 0C 01 6A	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
12	High Altitude Mode	Write	AUTO	06 14 00 04 00 34 11 0C 02 6B	03 14 00 00 00 14	05 14 00 03 00 00 00 02 19
13	High Altitude Mode	Read	Status	07 14 00 05 00 34 00 00 11 0C 6A	05 14 00 03 00 00 00 00 17	
14	Lamp mode / Light source mode	Write	Normal	06 14 00 04 00 34 11 10 00 6D	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
15	Lamp mode / Light source mode	Write	Full Normal	06 14 00 04 00 34 11 10 0B 78	03 14 00 00 00 14	05 14 00 03 00 00 00 0B 22
16	Lamp mode / Light source mode	Write	Eco	06 14 00 04 00 34 11 10 01 6E	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
17	Lamp mode / Light source mode	Write	SuperEco	06 14 00 04 00 34 11 10 03 70	03 14 00 00 00 14	05 14 00 03 00 00 00 03 1A
18	Light source Mode	Read	Status	07 14 00 05 00 34 00 00 11 10 6E	05 14 00 03 00 00 00 00 17	05 14 00 03 00 00 00 00 17
19	Projector Position	Write	Front Table	06 14 00 04 00 34 12 00 00 5E	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
20	Projector Position	Write	Rear Table	06 14 00 04 00 34 12 00 01 5F	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
21	Projector Position	Write	Rear Ceiling	06 14 00 04 00 34 12 00 02 60	03 14 00 00 00 14	05 14 00 03 00 00 00 02 19
22	Projector Position	Write	Front Ceiling	06 14 00 04 00 34 12 00 03 61	03 14 00 00 00 14	05 14 00 03 00 00 00 03 1A
23	Projector Position	Read	Status	07 14 00 05 00 34 00 00 12 00 5F	05 14 00 03 00 00 00 00 17	
24	Contrast	Write	Decrease	06 14 00 04 00 34 12 02 00 60	03 14 00 00 00 14	
25	Contrast	Write	Increase	06 14 00 04 00 34 12 02 01 61	03 14 00 00 00 14	
26	Contrast	Read	Get Value	07 14 00 05 00 34 00 00 12 02 61	05 14 00 04 00 00 00 00 00 18	Refer to value mapping table 3.2.2 (2 byte)
27	Brightness	Write	Decrease	06 14 00 04 00 34 12 03 00 61	03 14 00 00 00 14	
28	Brightness	Write	Increase	06 14 00 04 00 34 12 03 01 62	03 14 00 00 00 14	
29	Brightness	Read	Get Value	07 14 00 05 00 34 00 00 12 03 62	05 14 00 04 00 00 00 32 00 4A	Refer to value mapping table 3.2.2 (2 byte)
30	Aspect ratio	Write	Auto	06 14 00 04 00 34 12 04 00 62	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
31	Aspect ratio	Write	4:03	06 14 00 04 00 34 12 04 02 64	03 14 00 00 00 14	05 14 00 03 00 00 00 02 19
32	Aspect ratio	Write	16:09	06 14 00 04 00 34 12 04 03 65	03 14 00 00 00 14	05 14 00 03 00 00 00 03 1A
33	Aspect ratio	Write	16:10	06 14 00 04 00 34 12 04 04 66	03 14 00 00 00 14	05 14 00 03 00 00 00 04 1B
34	Aspect ratio	Write	21:09	06 14 00 04 00 34 12 04 0B 6D	03 14 00 00 00 14	05 14 00 03 00 00 00 0B 22
35	Aspect ratio	Read	Get Value	07 14 00 05 00 34 00 00 12 04 63	05 14 00 03 00 00 00 00 17	
36	Color temperature	Write	Warm/	06 14 00 04 00 34 12 08 00 66	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
37			5500K			
38	Color temperature	Write	Neutral/	06 14 00 04 00 34 12 08 02 68	03 14 00 00 00 14	05 14 00 03 00 00 00 02 19
39			7500K			
40	Color temperature	Write	Cool/	06 14 00 04 00 34 12 08 03 69	03 14 00 00 00 14	05 14 00 03 00 00 00 03 1A
41			8000K/8500K			
42	Blank	Write	ON	06 14 00 04 00 34 12 09 01 68	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
43	Blank	Write	OFF	06 14 00 04 00 34 12 09 00 67	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
44	Blank	Read	Status	07 14 00 05 00 34 00 00 12 09 68	05 14 00 03 00 00 00 00 17	
45	Keystone-Vertical	Write	Decrease	06 14 00 04 00 34 12 0A 00 68	03 14 00 00 00 14	
46	Keystone-Vertical	Write	Increase	06 14 00 04 00 34 12 0A 01 69	03 14 00 00 00 14	
47	Keystone-Vertical	Read	Get value	07 14 00 05 00 34 00 00 12 0A 69	05 14 00 03 00 00 00 00 17	Refer to value mapping table 3.2.1 (1byte)
48	Keystone-Horizontal	Write	Decrease	06 14 00 04 00 34 11 31 00 8E	03 14 00 00 00 14	
49	Keystone-Horizontal	Write	Increase	06 14 00 04 00 34 11 31 01 8F	03 14 00 00 00 14	
50	Keystone-Horizontal	Read	Get value	07 14 00 05 00 34 00 00 11 31 8F	05 14 00 03 00 00 00 00 17	Refer to value mapping table 3.2.1 (1byte)
51	Color mode	Write	Brightest	06 14 00 04 00 34 12 0B 00 69	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
52	Color mode	Write	Movie	06 14 00 04 00 34 12 0B 01 6A	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
53	Color mode	Write	User1 / User	06 14 00 04 00 34 12 0B 18 81	03 14 00 00 00 14	05 14 00 03 00 00 00 18 2F
54	Color mode	Write	Golf	06 14 00 04 00 34 12 0B 1D 86	03 14 00 00 00 14	05 14 00 03 00 00 00 1D 34
55	Color mode	Read	Status	07 14 00 05 00 34 00 00 12 0B 6A	05 14 00 03 00 00 00 00 17	
56	Sharpness	Write	Decrease	06 14 00 04 00 34 12 0E 00 6C	03 14 00 00 00 14	
57	Sharpness	Write	Increase	06 14 00 04 00 34 12 0E 01 6D	03 14 00 00 00 14	
58	Sharpness	Read	Get value	07 14 00 05 00 34 00 00 12 0E 6D	05 14 00 04 00 00 00 00 00 18	Refer to value mapping table 3.2.2 (2 byte)
59	Freeze	Write	ON	06 14 00 04 00 34 13 00 01 60	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18

60	Freeze	Write	OFF	06 14 00 04 00 34 13 00 00 5F	03 14 00 00 00 14	05 14 00 03 00 00 00 17
61	Freeze	Read	Status	07 14 00 05 00 34 00 00 13 00 60	05 14 00 03 00 00 00 17	Refer to value mapping table 3.2.1 (1byte)
62	Source input	Write	D-Sub / Comp. 1	06 14 00 04 00 34 13 01 00 60	03 14 00 00 00 14	05 14 00 03 00 00 00 17
63	Source input	Write	HDMI 1	06 14 00 04 00 34 13 01 03 63	03 14 00 00 00 14	05 14 00 03 00 00 00 03 1A
64	Source input	Write	HDMI 2	06 14 00 04 00 34 13 01 07 67	03 14 00 00 00 14	05 14 00 03 00 00 00 07 1E
65	Source input	Write	HDbaseT	06 14 00 04 00 34 13 01 0C 6C	03 14 00 00 00 14	05 14 00 03 00 00 00 0C 23
66	Source input	Write	USB Reader /	06 14 00 04 00 34 13 01 1A 7A	03 14 00 00 00 14	05 14 00 03 00 00 00 1A 31
67			USB1			
68	Source input	Write	LAN / WiFi Display	06 14 00 04 00 34 13 01 1B 7B	03 14 00 00 00 14	05 14 00 03 00 00 00 1B 32
69	Source input	Write	USB Display	06 14 00 04 00 34 13 01 1C 7C	03 14 00 00 00 14	05 14 00 03 00 00 00 1C 33
70	Source input	Read	Status	07 14 00 05 00 34 00 00 13 01 61	05 14 00 03 00 00 00 17	
71	Quick Auto Search	Write	ON	06 14 00 04 00 34 13 02 01 62	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
72	Quick Auto Search	Write	OFF	06 14 00 04 00 34 13 02 00 61	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
73	Quick Auto Search	Read	Status	07 14 00 05 00 34 00 00 13 02 62	05 14 00 03 00 00 00 01 18	
74	Mute	Write	ON	06 14 00 04 00 34 14 00 01 61	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
75	Mute	Write	OFF	06 14 00 04 00 34 14 00 00 60	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
76	Mute	Read	Status	07 14 00 05 00 34 00 00 14 00 61	05 14 00 03 00 00 00 00 17	Note 8.
77	Volume	Write	Increase	06 14 00 04 00 34 14 01 00 61	03 14 00 00 00 14	
78	Volume	Write	Decrease	06 14 00 04 00 34 14 02 00 62	03 14 00 00 00 14	
79	Volume	Write	Write Value	06 14 00 04 00 34 13 2A 11 9A	03 14 00 00 00 14	
80	Volume	Read	Get Value	07 14 00 05 00 34 00 00 14 03 64	05 14 00 03 00 00 00 01 18	Refer to value mapping table 3.2.1 (1byte)
81	Language	Write	English	06 14 00 04 00 34 15 00 00 61	03 14 00 00 00 14	05 14 00 03 00 00 00 00 17
82	Language	Write	Français	06 14 00 04 00 34 15 00 01 62	03 14 00 00 00 14	05 14 00 03 00 00 00 01 18
83	Language	Write	Deutsch	06 14 00 04 00 34 15 00 02 63	03 14 00 00 00 14	05 14 00 03 00 00 00 02 19
84	Language	Write	Italiano	06 14 00 04 00 34 15 00 03 64	03 14 00 00 00 14	05 14 00 03 00 00 00 03 1A
85	Language	Write	Español	06 14 00 04 00 34 15 00 04 65	03 14 00 00 00 14	05 14 00 03 00 00 00 04 1B
86	Language	Write	РУССКИЙ	06 14 00 04 00 34 15 00 05 66	03 14 00 00 00 14	05 14 00 03 00 00 00 05 1C
87	Language	Write	繁體中文	06 14 00 04 00 34 15 00 06 67	03 14 00 00 00 14	05 14 00 03 00 00 00 06 1D
88	Language	Write	简体中文	06 14 00 04 00 34 15 00 07 68	03 14 00 00 00 14	05 14 00 03 00 00 00 07 1E
89	Language	Write	日本語	06 14 00 04 00 34 15 00 08 69	03 14 00 00 00 14	05 14 00 03 00 00 00 08 1F
90	Language	Write	한국어	06 14 00 04 00 34 15 00 09 6A	03 14 00 00 00 14	05 14 00 03 00 00 00 09 20
91	Language	Write	Swedish	06 14 00 04 00 34 15 00 0a 6B	03 14 00 00 00 14	05 14 00 03 00 00 00 0a 21
92	Language	Write	Dutch	06 14 00 04 00 34 15 00 0b 6C	03 14 00 00 00 14	05 14 00 03 00 00 00 0b 22
93	Language	Write	Turkish	06 14 00 04 00 34 15 00 0c 6D	03 14 00 00 00 14	05 14 00 03 00 00 00 0c 23
94	Language	Write	Czech	06 14 00 04 00 34 15 00 0d 6E	03 14 00 00 00 14	05 14 00 03 00 00 00 0d 24
95	Language	Write	Portugese	06 14 00 04 00 34 15 00 0e 6F	03 14 00 00 00 14	05 14 00 03 00 00 00 0e 25
96	Language	Write	Thai	06 14 00 04 00 34 15 00 0f 70	03 14 00 00 00 14	05 14 00 03 00 00 00 0f 26
97	Language	Write	Polish	06 14 00 04 00 34 15 00 10 71	03 14 00 00 00 14	05 14 00 03 00 00 00 10 27
98	Language	Write	Finnish	06 14 00 04 00 34 15 00 11 72	03 14 00 00 00 14	05 14 00 03 00 00 00 11 28
99	Language	Write	Indonesia	06 14 00 04 00 34 15 00 13 74	03 14 00 00 00 14	05 14 00 03 00 00 00 13 2A
100	Language	Write	Vie	06 14 00 04 00 34 15 00 15 76	03 14 00 00 00 14	05 14 00 03 00 00 00 15 2C
101	Language	Write	Hungarian	06 14 00 04 00 34 15 00 17 78	03 14 00 00 00 14	05 14 00 03 00 00 00 17 2E
102	Language	Write	Norse	06 14 00 04 00 34 15 00 18 79	03 14 00 00 00 14	05 14 00 03 00 00 00 18 2F
104	Language	Write	Danish	06 14 00 04 00 34 15 00 19 7A	03 14 00 00 00 14	05 14 00 03 00 00 00 19 30
105	Language	Read	Status	07 14 00 05 00 34 00 00 15 00 62	05 14 00 03 00 00 00 17	
106	Light Source Usage Time	Read	Get Usage Time	07 14 00 05 00 34 00 00 15 0A 6C	05 14 00 06 00 00 00 B8 0B 00 00 DD	See note 4
107	Error status	Read	Status	07 14 00 05 00 34 00 00 0C 0D 66	05 14 00 16 00 00 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 01 02 03 04 01 01 02 FF	See note 3
108	Screen Color	Write	Greenboard	06 14 00 04 00 34 11 32 02 91	03 14 00 00 00 14	05 14 00 03 00 00 00 02 19
109	Screen Color	Write	Blueboard	06 14 00 04 00 34 11 32 04 93	03 14 00 00 00 14	05 14 00 03 00 00 00 04 1B
110	Screen Color	Write	Red	06 14 00 04 00 34 11 32 05 94	03 14 00 00 00 14	05 14 00 03 00 00 00 05 1C
111	Screen Color	Write	Yellow	06 14 00 04 00 34 11 32 06 95	03 14 00 00 00 14	05 14 00 03 00 00 00 06 1D
112	Screen Color	Read	Status	07 14 00 05 00 34 00 00 11 32 90	05 14 00 03 00 00 00 17	
113	Remote Key	Write	Menu	06 14 00 04 00 34 02 04 0F 61	03 14 00 00 00 14	
114	Remote Key	Write	Top	06 14 00 04 00 34 02 04 0B 5D	03 14 00 00 00 14	
115	Remote Key	Write	Bottom	06 14 00 04 00 34 02 04 0C 5E	03 14 00 00 00 14	
116	Remote Key	Write	Left	06 14 00 04 00 34 02 04 0D 5F	03 14 00 00 00 14	
117	Remote Key	Write	Right	06 14 00 04 00 34 02 04 0E 60	03 14 00 00 00 14	
118	Remote Key	Write	Source	06 14 00 04 00 34 02 04 04 56	03 14 00 00 00 14	
119	Remote Key	Write	Enter	06 14 00 04 00 34 02 04 15 67	03 14 00 00 00 14	
120	Remote Key	Write	Auto	06 14 00 04 00 34 02 04 08 5A	03 14 00 00 00 14	
121	FW Version	Read	Get value	07 14 00 05 00 34 00 00 11 1A 78	05 14 00 06 00 00 00 01 00 02 06 23	Red word: ASCII code of FW version, 102
122	Reset to Factory Default	Write	Reset to Factory Default	06 14 00 03 00 34 0C 08 5F	03 14 00 00 00 14	Note 9.