ST4302S/ST5502S/ST6502S/ST7502S/ST8602S
RS232 & LAN Protocol
Installation Guide

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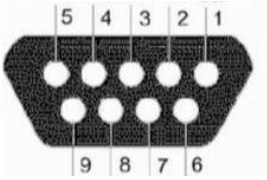
Introduction

This document describes the hardware interface spec and software protocols of RS232 interface communication between Commercial Display and PC or other control unit with RS232 protocol.

The set protocol contains two sections command: Set-Function and Get-Function

In this document, "PC" represents all the control units that can send or receive the RS232 protocol command.

RS232 pin assignment



Pin	Description	Pin	Description
1	NC	2	RXD
3	TXD	4	NC
5	GND	6	NC
7	NC	8	NC
9	RI		

Communication setting

Baud rate select: 9600bps (fixed)/ Data bits: 8 bits (fixed)

Parity: None (fixed)/ Stop Bits: 1(fixed)

Command message reference

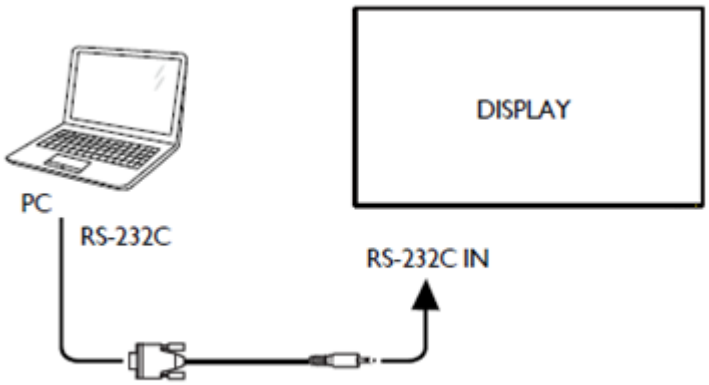
PC sends to Monitor command packet followed by "CR". Every time PC sends control command to the Monitor, the Monitor shall response as follows:

1. If the message is received correctly, it will send "+" (02Bh) followed by "CR" (00Dh).
2. If the message is received incorrectly, it will send "-" (02Dh) followed by "CR" (00Dh).

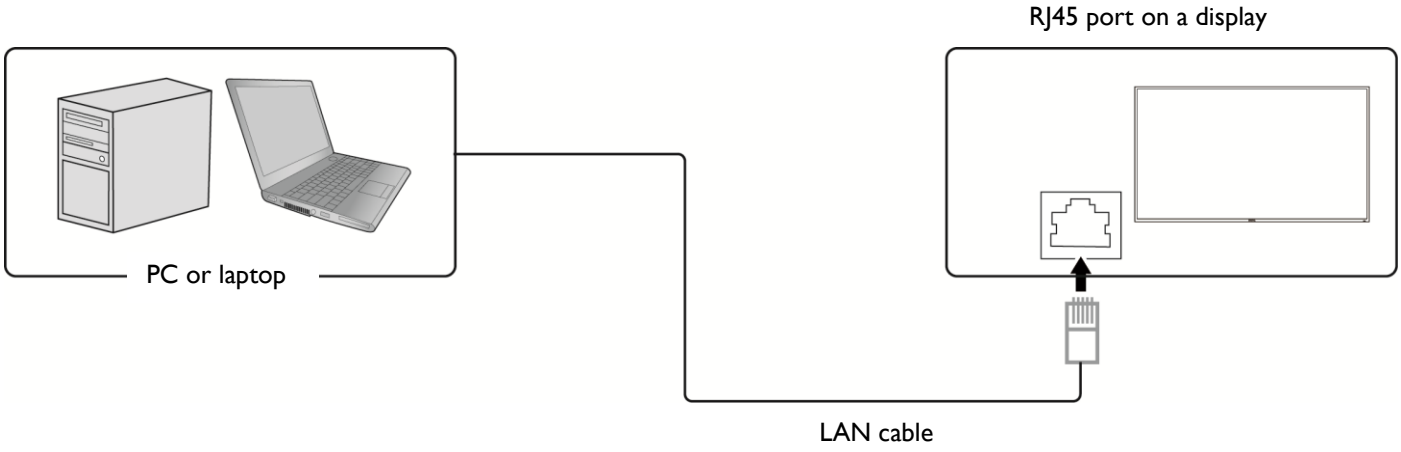
Connections and communication settings

Choose one of the connections and set up properly before RS232 control.

RS232 serial port connection



RS232 via LAN



Find the Wired LAN IP address of the connected display from the menu and make sure the display and the computer are within the same network.

Protocol Command Description

Item	Description
Length	Total Bytes of Message excluding "CR"
TV ID	Identification for each of TV TV ID is “01” for LAN control & RS232 control
Command Type	Identify command type, "s" (0x73h): Set Command "g" (0x67h): Get Command "r" (0x72h): Reply Command "+" (0x2Bh): Valid command Reply "-" (0x2Dh): Invalid command Reply
Command	Function command code: One byte ASCII code
Value [1~3]	Three bytes ASCII that defines the value
CR	0x0D

Set-function listing

The PC can control the LCD Monitor for specific actions. The Set-Function command allows you to control the LCD monitor behavior in a remote sit through the RS232 port. The
Set-Function packet format consists of 11 bytes.

Set-function description

Item	Description
Length	Total Bytes of Message excluding "CR"
TV ID	Identification for each of TV TV ID is “01” for LAN control & RS232 control
Command Type	Identify command type, "s" (0x73h): Set Command
Command	Function command code: One byte ASCII code
Value [1~3]	Three bytes ASCII that defines the value
CR	0x0D

Set-function format

Send: (Command Type="s")

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Byte count	1 Byte	2 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5	6	7	8	9

Reply: (Command Type="+" or "-")

Name	Length	ID	Command type	CR
Byte count	1 Byte	2 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5

Example 1: Set Brightness as 76 and this command is valid.

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x73	0x24	0x30	0x37	0x36	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	CR
Hex	0x34	0x30 0x31	0x2B	0x0D

Example 2: Set Brightness as 176 and this command is NOT valid.

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x73	0x24	0x31	0x37	0x36	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	CR
Hex	0x34	0x30 0x31	0x2D	0x0D

Example 3: Set Balance as 50 this command is valid.

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x73	0x39	0x30	0x35	0x30	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	CR
Hex	0x34	0x30 0x31	0x2D	0x0D

Example 4: Set Balance as 115 this command is Not valid.

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x73	0x39	0x31	0x31	0x35	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	CR
Hex	0x34	0x30 0x31	0x2D	0x0D

Set-function table

Set Function	Len	Cmd Type	Cmd Code(HEX)	RS232/Lan	Send Set Command (HEX)
Power	8	s	21	000 :Monitor Off (Backlight off +mute)	38 30 31 73 21 30 30 30 0D
				001 :Monitor On (Backlight on + last status)	38 30 31 73 21 30 30 31 0D
				002 : Standby (android off)	38 30 31 73 21 30 30 32 0D
				003 : Reboot System	38 30 31 73 21 30 30 33 0D
Video Source	8	s	22	000 : VGA	38 30 31 73 22 30 30 30 0D
				001 : HDMI1	38 30 31 73 22 30 30 31 0D
				002: HDMI2	38 30 31 73 22 30 30 32 0D
				021 :HDMI3	38 30 31 73 22 30 32 31 0D
				006 : DVI-D	38 30 31 73 22 30 30 36 0D
				101 : android	38 30 31 73 22 31 30 31 0D
				102 : OPS	38 30 31 73 22 31 30 32 0D
				120 : Custom	38 30 31 73 22 31 32 30 0D
Contrast	8	s	23	000 ~ 100	38 30 31 73 23 30 30 30 0D ~ 38 30 31 73 23 31 30 30 0D
Brightness	8	s	24	000 ~ 100	38 30 31 73 24 30 30 30 0D ~ 38 30 31 73 24 31 30 30 0D
Sharpness	8	s	25	000 ~ 100	38 30 31 73 25 30 30 30 0D ~ 38 30 31 73 25 31 30 30 0D
Aspect Ratio	8	s	31	000 : 16:9	38 30 31 73 31 30 30 30 0D
				001 : 4:3	38 30 31 73 31 30 30 31 0D
				002 : 1:1	38 30 31 73 31 30 30 32 0D
Language	8	s	32	000: English	38 30 31 73 32 30 30 30 0D
				001: Français	38 30 31 73 32 30 30 31 0D
				002: Español	38 30 31 73 32 30 30 32 0D
				003: 繁中	38 30 31 73 32 30 30 33 0D
				004: 简中	38 30 31 73 32 30 30 34 0D
				005: Português	38 30 31 73 32 30 30 35 0D
				006: German	38 30 31 73 32 30 30 36 0D
				007: Dutch	38 30 31 73 32 30 30 37 0D
				008: Polish	38 30 31 73 32 30 30 38 0D
				009: Russia	38 30 31 73 32 30 30 39 0D
				010:Czech	38 30 31 73 32 30 31 30 0D
				011:Danish	38 30 31 73 32 30 31 31 0D
				012:Swedish	38 30 31 73 32 30 31 32 0D

				013:Italian	38 30 31 73 32 30 31 33 0D
				014:Romanian	38 30 31 73 32 30 31 34 0D
				015:Norwegian	38 30 31 73 32 30 31 35 0D
				016:Finnish	38 30 31 73 32 30 31 36 0D
				017:Greek	38 30 31 73 32 30 31 37 0D
				019:Arabic	38 30 31 73 32 30 31 39 0D
				020:Japanse	38 30 31 73 32 30 32 30 0D
				021: Thailand	38 30 31 73 32 30 32 31 0D
				022: Korean	38 30 31 73 32 30 32 32 0D
				023 : Hungarian	38 30 31 73 32 30 32 33 0D
				024 : Persian	38 30 31 73 32 30 32 34 0D
				025 : Vietnamese	38 30 31 73 32 30 32 35 0D
				026 : Turkish	38 30 31 73 32 30 32 36 0D
				027 : Indonesian	38 30 31 73 32 30 32 37 0D
Volume	8	s	35	000 ~ 100	38 30 31 73 35 30 30 30 0D ~ 38 30 31 73 35 31 30 30 0D
Mute	8	s	36	000: Off	38 30 31 73 36 30 30 30 0D
				001: On	38 30 31 73 36 30 30 31 0D
Balance	8	s	39	000~100	38 30 31 73 39 30 30 30 0D ~ 38 30 31 73 39 31 30 30 0D
Treble	8	s	37	000~100	38 30 31 73 37 30 30 30 0D ~ 38 30 31 73 37 31 30 30 0D
Bass	8	s	38	000~100	38 30 31 73 38 30 30 30 0D ~ 38 30 31 73 38 31 30 30 0D
Remote control command	8	s	40	000 : Vol +	38 30 31 73 40 30 30 30 0D
				001 : Vol -	38 30 31 73 40 30 30 31 0D
				010 : Remote up	38 30 31 73 40 30 31 30 0D
				011 : Remote down	38 30 31 73 40 30 31 31 0D
				012 : Remote left	38 30 31 73 40 30 31 32 0D
				013 : Remote right	38 30 31 73 40 30 31 33 0D
				014 : Remote OK	38 30 31 73 40 30 31 34 0D
				020 : Remote Menu Key	38 30 31 73 40 30 32 30 0D
				021 : Remote Input source	38 30 31 73 40 30 32 31 0D
				022 : Remote Exit	38 30 31 73 40 30 32 32 0D
				040 : X-Sign	38 30 31 73 40 30 34 30 0D
				043 : Android Setting	38 30 31 73 40 30 34 33 0D
IR Control	8	s	42	000: Disable (Lock)	38 30 31 73 42 30 30 30 0D
				001:Enable (unlock)	38 30 31 73 42 30 30 31 0D
Button&IR Control	8	s	43	000: Disable (Lock)	38 30 31 73 43 30 30 30 0D
				001: Enable (unlock)	38 30 31 73 43 30 30 31 0D

ButtonControl	8	s	45	000: Disable (Lock)	38 30 31 73 45 30 30 30 0D
				001:Enable (unlock)	38 30 31 73 45 30 30 31 0D
Saturation / Chroma	8	s	82	000 ~ 100	38 30 31 73 82 30 30 30 0D ~ 38 30 31 73 82 31 30 30 0D
Backlight	8	s	84	000 ~ 100	38 30 31 73 84 30 30 30 0D ~ 38 30 31 73 84 31 30 30 0D
DCR	8	s	85	000: Off	38 30 31 73 85 30 30 30 0D
				001: On	38 30 31 73 85 30 30 31 0D
Color Temp	8	s	86	000 : 10000K	38 30 31 73 86 30 30 30 0D
				001 : 9300K	38 30 31 73 86 30 30 31 0D
				002 : 6500K	38 30 31 73 86 30 30 32 0D
				003 : 3000K	38 30 31 73 86 30 30 33 0D
				004 : 4000K	38 30 31 73 86 30 30 34 0D
				005 : 5000K	38 30 31 73 86 30 30 35 0D
				006 : 7500K	38 30 31 73 86 30 30 36 0D
				007 : Native	38 30 31 73 86 30 30 37 0D
				008 : User1	38 30 31 73 86 30 30 38 0D
				009 : User2	38 30 31 73 86 30 30 39 0D
Auto Adjustment Execute	8	s	8F	000: execute	38 30 31 73 8F 30 30 30 0D
RTC Year	8	s	98	000 ~ 037	38 30 31 73 98 30 30 30 0D ~ 38 30 31 73 98 30 33 37 0D
RTC Month	8	s	99	001 ~ 012	38 30 31 73 99 30 30 31 0D ~ 38 30 31 73 99 30 31 32 0D
RTC Day	8	s	9A	001 ~ 031	38 30 31 73 9A 30 30 31 0D ~ 38 30 31 73 9A 30 33 31 0D
RTC Hour	8	s	9B	000 ~ 023	38 30 31 73 9B 30 30 30 0D ~ 38 30 31 73 9B 30 32 33 0D
RTC Minute	8	s	9C	000 ~ 059	38 30 31 73 9C 30 30 30 0D ~ 38 30 31 73 9C 30 35 39 0D
Power Save	8	s	A9	000: off	38 30 31 73 A9 30 30 30 0D
				001: low	38 30 31 73 A9 30 30 31 0D
				002: high	38 30 31 73 A9 30 30 32 0D
Switch on status	8	s	AB	000 : Power Off	38 30 31 73 AB 30 30 30 0D
				001 : Force On	38 30 31 73 AB 30 30 31 0D
				002 : Last Status	38 30 31 73 AB 30 30 32 0D

On/Off Timer	14	s	E0	Byte1~Byte9 (1) Byte1: Decide which Timer is selected, and its enable/disable setting. Byte1[3:0]=0x1~0x07. There are totally 7 Timers, this value is used to decide which Timer is selected. Byte1[7]: Reserved, should be 0. Byte1[6]: The Timer is enable or not. Byte1[6]=1 means enable. Byte1[5]: The On Timer is enable or not. Byte1[5]=1 means enable. Byte1[4]: The Off Timer is enable or not. Byte1[4]=1 means enable. (2) Byte2: The Day of the On/Off Timer. bit0 for Sunday, bit1 for Monday, bit2 for Tuesday, bit3 for Wednesday, bit4 for Thursday, bit5 for Friday, bit6 for Saturday, bit7 for Everyday. (3) Byte3: The Hour of the On Timer. Byte3=0x00~0x17. (4) Byte4: The Minute of the On Timer. Byte4=0x00~0x3B. (5) Byte5: The Hour of the Off Timer. Byte5=0x00~0x17. (6) Byte6: The Minute of the Off Timer. Byte6=0x00~0x3B. (7) Byte7: Select the Video Source.(depends on actual I/O) 0x00=VGA, 0x01=HDMI1, 0x02=HDMI2,0x15=HDMI3, 0x06=DVI, 0x65=Android,0x66=OPS,0x78=custom, 0xFF=Last Channel(or default follow boot source) the system default is 0xFF (8) Byte8~9 are reserved, and should be 0x00. (9) When Byte2~Byte6=0x00, Byte7=0xff or 0x00, clear the schedule to default for the timer assigned in Byte1.	
WOL	8	s	F0	000: Off	38 30 31 73 F0 30 30 30 0D
				001: On	38 30 31 73 F0 30 30 31 0D
Image Noise Reduction	8	s	F1	000 : Off	38 30 31 73 F1 30 30 30 0D
				001 : On (High)	38 30 31 73 F1 30 30 31 0D

Get-function listing

The PC can interrogate the LCD Monitor for specific information. The Get-Function packet format consists of 5 bytes which are similar to the Set-Function packet structure. Note that the "Value" byte is always = 00.

Get-function description

Item	Description
Length	Total Bytes of messages excluding "CR"
TV ID	Identification for each of TV TV ID is “01” for LAN control & RS232 control
Command Type	Identify command type, "g" (0x67h): Get Command
Command	Function command code: One byte ASCII code
Value [1~3]	Three bytes ASCII that defines the value NOTE: To get backlight senor, thermal sensor, and ambient sensor, you need four bytes ASCII that defines the value and the length is 9.
CR	0x0D

Get-function format

Send: (Command Type="g")

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Byte count	1 Byte	2 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5	6	7	8	9

Reply: (Command Type="r" or "-")

If the Command is valid, Command Type ="r"

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Byte count	1 Byte	2 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5	6	7	8	9

If the Command is Not valid, Command Type="-"

Name	Length	ID	Command type	CR
Byte count	1 Byte	2 Byte	1 Byte	1 Byte
Bytes order	1	2~3	4	5

Example 1: Get Brightness and this command is valid.

The Brightness value is 67.

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x67	0x62	0x30	0x30	0x30	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x72	0x62	0x30	0x36	0x37	0x0D

Example 3: Get Balance from and this command is valid.

The Balance value is 32.

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x67	0X39	0x30	0x30	0x30	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x72	0x39	0x30	0x33	0x32	0x0D

Example 4: Get Balance, but the Balance command ID is error and it is NOT in the command table.

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	CR
Hex	0x38	0x30 0x31	0x67	0XD7	0x30	0x30	0x30	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	CR
Hex	0x34	0x30 0x31	0x2D	0x0D

Example 5: Get Operation time from system and this command is valid.

The System Operation time value is 1786 (ASCII code).

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	Value4	Value5	CR
Hex	0x38	0x30 0x31	0x67	0X76	0x30	0x30	0x30	0x30	0x30	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	Value4	Value5	CR
Hex	0x38	0x30 0x31	0x72	0x76	0x30	0x31	0x37	0x38	0x36	0x0D

Example 6: Get CO2 Value from System and this command is valid.

The lux value is 786 (ASCII code).

Send (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	Value4	Value5	CR
Hex	0x38	0x30 0x31	0x67	0XAB	0x30	0x30	0x30	0x30	0x30	0x0D

Reply (Hex Format)

Name	Length	ID	Command type	Command	Value1	Value2	Value3	Value4	Value5	CR
Hex	0x38	0x30 0x31	0x72	0xAB	0x30	0x30	0x37	0x38	0x36	0x0D

Get-function table

Func	Len	Cmd Type	Cmd Code (Hex)	ASCII Bytes	Send Get Command MDA to Device	System Reply Command message
Model Info	20	g	20	(1) Input value: Byte1 - Byte2 - Byte3…Byte15 Byte2~Byte11=0x00 Byte1=0x01: Get Customer Name Byte1=0x02: Get Customer Model Name Byte1=0x04: Get Scaler Firmware Version Byte1=0x05: Get LAN Firmware Version (same with scaler Firemare version) Byte1=0x06: Get Serial Number (2) Return value: Byte1 - Byte2 - Byte3…Byte15 The Byte1 value at the return value should be the same as the value of Byte1 at input value. Byte2~Byte15 should be ASCII format. Ex: If Customer=Gener	Get Customer Name : 44 30 31 67 20 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 0D	44 30 31 72 20 ***01*** 42 45 4E 51 00 00 00 00 00 00 00 00 00 00 0D
					Get Model Name : 44 30 31 67 20 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 0D	RP750K : 44 30 31 72 20 ***02*** 52 50 37 35 30 4B 00 00 00 00 00 00 00 00 0D
					Get SW version : 44 30 31 67 20 04 00 00 00 00 00 00 00 00 00 00 00 00 00 00 0D	44 30 31 72 20 04 32 30 31 39 31 31 32 32 31 32 35 39 35 31 0D
					Get Serial Number : 44 30 31 67 20 06 00 00 00 00 00 00 00 00 00 00 00 00 00 00 0D	44 30 31 72 20 ***06*** 45 49 50 33 46 30 30 30 35 32 30 32 45 00 0D

				ic, Byte1=0x01, Byte2='G', Byte3='e',...Byte8='c', Byte9~Byte11=0x00. Ex: If the Scaler Firmware Version=1.02, Byte1=0x03, Byte2='1', Byte3='.', Byte4='0', Byte5='2', Byte6~Byte11=0x00.		
Signal Status	8	g	22	000: Signal unstable	38 30 31 67 22 30 30 30 0D	38 30 31 72 22 30 30 30 0D
				001: Signal stable (Active Sync exists)		38 30 31 72 22 30 30 31 0D
Treble	8	g	37	000~100	38 30 31 67 37 30 30 30 0D	38 30 31 72 37 30 30 30 0D ~38 30 31 72 37 31 30 30 0D
Bass	8	g	38	000~100	38 30 31 67 38 30 30 30 0D	38 30 31 72 38 30 30 30 0D ~ 38 30 31 72 38 31 30 30 0D
Balance	8	g	39	000~100	38 30 31 67 39 30 30 30 0D	38 30 31 72 39 30 30 30 0D ~ 38 30 31 72 39 31 30 30 0D
Contrast	8	g	61	000 ~ 100	38 30 31 67 61 30 30 30 0D	38 30 31 72 61 30 30 30 0D ~ 38 30 31 72 61 31 30 30 0D
Brightness	8	g	62	000 ~ 100	38 30 31 67 62 30 30 30 0D	38 30 31 72 62 30 30 30 0D ~ 38 30 31 72 62 31 30 30 0D
Sharpness	8	g	63	000 ~ 100	38 30 31 67 63 30 30 30 0D	38 30 31 72 63 30 30 30 0D ~ 38 30 31 72 63 31 30 30 0D
Volume	8	g	66	000 ~ 100	38 30 31 67 66 30 30 30 0D	38 30 31 72 66 30 30 30 0D ~ 38 30 31 72 66 31 30 30 0D
Mute	8	g	67	000: Off	38 30 31 67 67 30 30 30 0D	38 30 31 72 67 30 30 30 0D
				001: On		38 30 31 72 67 30 30 31 0D
IR Control	8	g	68	000: Disable (Lock)	38 30 31 67 68 30 30 30 0D	38 30 31 72 68 30 30 30 0D
				001: Enable		38 30 31 72 68 30 30 31 0D

				(Unlock)		
Button&IR Control	8	g	69	000: Disable (Lock)	38 30 31 67 69 30 30 30 0D	38 30 31 72 69 30 30 30 0D
				001: Enable (Unlock)		38 30 31 72 69 30 30 30 0D
Video Source	8	g	6A	000 : VGA	38 30 31 67 6A 30 30 30 0D	38 30 31 72 6A 30 30 30 0D
				001 : HDMI1		38 30 31 72 6A 30 30 31 0D
				002: HDMI2		38 30 31 72 6A 30 30 32 0D
				021: HDMI3		38 30 31 72 6A 30 32 31 0D
				006 : DVI-D		38 30 31 72 6A 30 30 36 0D
				101 : android		38 30 31 72 6A 31 30 31 0D
				102 : custom		38 30 31 72 6A 31 30 32 0D
				120 : custom		38 30 31 72 6A 31 32 30 0D
Power	8	g	6C	000 :Monitor Off (Backlight off +mute)	38 30 31 67 6C 30 30 30 0D	38 30 31 72 6C 30 30 30 0D
				001 :Monitor On (Backlight on + last status)		38 30 31 72 6C 30 30 31 0D
Button Lock Control	8	g	73	000: Disable (Lock)	38 30 31 67 73 30 30 30 0D	38 30 31 72 73 30 30 30 0D
				001: Enable (Unlock)		38 30 31 72 73 30 30 31 0D
Operation Time	10	g	76	00000 ~ 99999	3A 30 31 67 76 30 30 30 30 30 0D	3A 30 31 72 76 30 30 30 30 30 0D ~ 3A 30 31 72 76 39 39 39 39 39 0D
Aspect Ratio	8	g	77	000 :16:9	38 30 31 67 77 30 30 30 0D	38 30 31 72 77 30 30 30 0D
				001 : 4:3		38 30 31 72 77 30 30 31 0D
				002 : 1:1		38 30 31 72 77 30 30 32 0D
Language	8	g	78	000: English	38 30 31 67 78 30 30 30 0D	38 30 31 72 78 30 30 30 0D
				001: Français		38 30 31 72 78 30 30 31 0D
				002: Español		38 30 31 72 78 30 30 32 0D
				003: 繁中		38 30 31 72 78 30 30 33 0D
				004: 简中		38 30 31 72 78 30 30 34 0D
				005: Português		38 30 31 72 78 30 30 35 0D
				006: German		38 30 31 72 78 30 30 36 0D
				007: Dutch		38 30 31 72 78 30 30 37 0D

				008: Polish		38 30 31 72 78 30 30 38 0D
				009: Russia		38 30 31 72 78 30 30 39 0D
				010:Czech		38 30 31 72 78 30 31 30 0D
				011:Danish		38 30 31 72 78 30 31 31 0D
				012:Swedish		38 30 31 72 78 30 31 32 0D
				013:Italian		38 30 31 72 78 30 31 33 0D
				014:Romanian		38 30 31 72 78 30 31 34 0D
				015:Norwegian		38 30 31 72 78 30 31 35 0D
				016:Finnish		38 30 31 72 78 30 31 36 0D
				017:Greek		38 30 31 72 78 30 31 37 0D
				019:Arabic		38 30 31 72 78 30 31 39 0D
				020:Japanse		38 30 31 72 78 30 32 30 0D
				021: Thailand		38 30 31 72 78 30 32 31 0D
				022: Korean		38 30 31 72 78 30 32 32 0D
				023 : Hungarian		38 30 31 72 78 30 32 33 0D
				024 : Persian		38 30 31 72 78 30 32 34 0D
				025 : Vietnamese		38 30 31 72 78 30 32 35 0D
				026 : Turkish		38 30 31 72 78 30 32 36 0D
				027 : Indonesian		38 30 31 72 78 30 32 37 0D
Chroma/ Saturation	8	g	B2	000 ~ 100	38 30 31 67 B2 30 30 30 0D	38 30 31 72 B2 30 30 30 0D ~ 38 30 31 72 B2 31 30 30 0D
Hue	8	g	B3	000 ~ 100	38 30 31 67 B3 30 30 30 0D	38 30 31 72 B3 30 30 30 0D ~ 38 30 31 72 B3 31 30 30 0D
Backlight	8	g	B4	000 ~ 100	38 30 31 67 B4 30 30 30 0D	38 30 31 72 B4 30 30 30 0D ~ 38 30 31 72 B4 31 30 30 0D
DCR	8	g	B5	000: Off	38 30 31 67 B5 30 30 30 0D	38 30 31 72 B5 30 30 30 0D
				001: On		38 30 31 72 B5 30 30 31 0D
Color Temp	8	g	B6	000 : 10000K	38 30 31 67 B6 30 30 30 0D	38 30 31 72 B6 30 30 30 0D
				001 : 9300K		38 30 31 72 B6 30 30 31 0D
				002 : 6500K		38 30 31 72 B6 30 30 32 0D
				003 : 3000K		38 30 31 72 B6 30 30 33 0D
				004 : 4000K		38 30 31 72 B6 30 30 34 0D
				005 : 5000K		38 30 31 72 B6 30 30 35 0D
				006 : 7500K		38 30 31 72 B6 30 30 36 0D
				007 : Native		38 30 31 72 B6 30 30 37 0D
				008 : User1		38 30 31 72 B6 30 30 38 0D
				009 : User2		38 30 31 72 B6 30 30 39 0D
RTC Year	8	g	C8	000 ~ 099	38 30 31 67 C8 30 30 30 0D	38 30 31 72 C8 30 30 30 0D ~ 38 30 31 72 C8 30 39 39 0D
RTC Month	8	g	C9	001 ~ 012	38 30 31 67 C9 30 30 30 0D	38 30 31 72 C9 30 30 31 0D ~

						38 30 31 72 C9 30 31 32 0D
RTC Day	8	g	CA	001 ~ 031	38 30 31 67 CA 30 30 30 0D	38 30 31 72 CA 30 30 31 0D ~ 38 30 31 72 CA 30 33 31 0D
RTC Hour	8	g	CB	000 ~ 023	38 30 31 67 CB 30 30 30 0D	38 30 31 72 CB 30 30 30 0D ~ 38 30 31 72 CB 30 32 33 0D
RTC Minute	8	g	CC	000 ~ 059	38 30 31 67 CC 30 30 30 0D	38 30 31 72 CC 30 30 30 0D ~ 38 30 31 72 CC 30 35 39 0D
Power Save	8	g	D9	000: off	38 30 31 67 D9 30 30 30 0D	38 30 31 72 D9 30 30 30 0D
				001: low		38 30 31 72 D9 30 30 31 0D
				002: high		38 30 31 72 D9 30 30 32 0D
Switch on Status	8	g	DA	000 : Power Off	38 30 31 67 DA 30 30 30 0D	38 30 31 72 DA 30 30 30 0D
				001 : Force On		38 30 31 72 DA 30 30 31 0D
				002 : Last Status		38 30 31 72 DA 30 30 32 0D
On/Off Timer	14	g	E0	Input value: Byte1 - Byte2 - Byte3…Byte9 (1) Byte1[3:0]: The Number of the On/Off Timer. There are totally 7 On/Off Timers, and this byte is used to select which timer is going to be accessed. (2) Byte1[7:4] is reserved, should be 0. (3) Byte2~9 are reserverd, should be 0x00. Return value: Byte1 - Byte2 - Byte3…Byte9 (1) Byte1[3:0]: Should retuen the same value as Byte1 at Input value. Byte1[7]: Reserved, should be 0. Byte1[6]: The Timer is enable or not. Byte1[6]=1 means enable. Byte1[5]: The On Timer is enable or not. Byte1[5]=1 means enable. Byte1[4]: The Off Timer is enable or not. Byte1[4]=1 means enable. (2) Byte2: The Day of the On/Off Timer. bit0 for Sunday, bit1 for Monday, bit2 for Tuesday, bit3 for Wednesday, bit4 for Thursday, bit5 for Friday, bit6 for Saturday, bit7 for Everday. (3) Byte3: The Hour of the On Timer. Byte3=0x00~0x17 or 0xFF(null) (4) Byte4: The Minute of the On Timer. Byte4=0x00~0x3B or 0xFF(null) (5) Byte5: The Hour of the Off Timer.		See the return value examples below: Ex: Byte1=0x01 means the Timer no.1 is selected and disable. Ex: Byte1=0x41 means the Timer no.1 is select and enable, and its both On and Off Timers are disable. Ex: Byte1=0x61 means the Timer no.1 is select and enable, and its On Timer is enable, Off Timer is disable. Ex: Byte1=0x71 means the Timer no.1 is select and enable, and its both On and Off Timers are enable. Ex: Byte1=0x53 means the Timer no.3 is select and enable, and its On Timer is disable, Off Timer is enable. Ex: Byte2=0x02 means the Timer is on Monday. Ex: Byte3=0x08, Byte4=0x1E means the On Timer is at 8:30. Ex: Byte5=0x17, Byte6=0x00

				Byte5=0x00~0x17 or 0xFF(null) (6) Byte6: The Minute of the Off Timer. Byte6=0x00~0x3B or 0xFF(null) (7) Byte7: Select the Video Source.(depends on actual I/O) 0x00=VGA, 0x01=HDMI1, 0x02=HDMI2, 0x06=DVI, 0x65=Android,0xFF=Last Channel(or default follow boot source) the system default is 0xFF (8) Byte8~9 are reserved, and should be 0x00.		means the Off Timer is at 23:00. Ex: Byte7=0x00 means the selected Video Source is VGA.
Network Setting	14	g	E1	See below explanation	IP Setup Mode : 3E 30 31 67 E1 00 00 00 00 00 00 00 00 0D	Manual : 3E 30 31 72 E1 00 00 00 00 00 00 00 00 00 0D DHCP : 3E 30 31 72 E1 00 01 00 00 00 00 00 00 00 0D
					IP Address : 3E 30 31 67 E1 01 00 00 00 00 00 00 00 00 0D	Ex. IP address : 192.168.11.113 -> to HEX -> C0 A8 0B 71 so system reply as 3E 30 31 72 E1 01 C0 A8 0B 71 00 00 00 00 0D
					Get Subnet Mask : 3E 30 31 67 E1 02 00 00 00 00 00 00 00 00 0D	Ex. Subnet Mask is 255.255.255.0 -> convert to HEX -> FF FF FF 00 so system reply 3E 30 31 72 E1 02 FF FF FF 00 00 00 00 00 0D
					Default Gateway : 3E 30 31 67 E1 03 00 00 00 00 00 00 00 00 0D	Ex. default gateway : 192.168.11.254 -> convert to HEX -> C0 A8 0B FE so system reply 3E 30 31 72 E1 03 C0 A8 0B FE 00 00 00 00 0D
					Primary DNS : 3E 30 31 67 E1 04 00 00 00 00 00 00 00 00 0D	Ex. DNS 168.95.1.1 -> convert to HEX -> A8 5F 01 01 so system reply 3E 30 31 72 E1 04 A8 5F 01 01 00 00 00 00 0D

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>Secondary DNS : 3E 30 31 67 E1 05 00 00 00 00 00 00 00 0D</td><td>Ex. Second DNS 168.95.192.1 -> convert to HEX -> A8 5F C0 01
so system reply
3E 30 31 72 E1 05 A8 5F C0 01 00 00 00 00 0D</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>Current using MAC Address : 3E 30 31 67 E1 06 00 00 00 00 00 00 00 00 0D</td><td>Ex.MAC address is 02 00 01 00 14 00 , so system reply
3E 30 31 72 E1 06 02 00 01 00 14 00 00 00 0D
(return current using interface MAC Address)</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>RJ45 LAN MAC Address : 3E 30 31 67 E1 07 00 00 00 00 00 00 00 00 0D</td><td>Ex. LAN MAC address is 02 00 01 00 14 00
so system reply
3E 30 31 72 E1 07 02 00 01 00 14 00 00 00 0D
(always return LAN MAC Address)</td></tr>
<tr><td>Network Setting explanation</td><td colspan="6">Input Value: Byte1 - Byte2 - Byte3…Byte9
(1) Byte1=0x00: IP Setup Mode
Byte1=0x01: IP Address
Byte1=0x02: Get Subnet Mask
Byte1=0x03: Default Gateway
Byte1=0x04: Primary DNS
Byte1=0x05: Secondary DNS
Byte1=0x06: current using interface MAC Address
Byte1=0x07: Ethernet (RJ45) MAC Address
(2) Byte2~9 are reserved, should be 0x00.
Return value: Byte1 - Byte2 - Byte3…Byte9
The Byte1 at the return value should be the same as the value of Byte1 at Input value. Byte2~Byte15 should be hex value format
(1) If Byte1=0x00(IP Setup Mode) at Input value, the return value should be
Byte1=0x00
Byte2=0x00: Manual
0x01: DHCP
Byte3~9 are reserved, should be 0x00.
(2) If Byte1=0x01(IP Address) at Input value, the return value should be
Ex: IP address=169.254.81.38
Byte1=0x01 (same as Byte1 at Input value)
Byte2=0xA9 (=169), Byte3=0xFE (=254), Byte4=0x51(=81), Byte5=0x26 (=38)</td></tr>
</table>

	Byte6~9 are reserved, should be 0x00. (3) If Byte1=0x02~0x05 at Input value, refer to (2) (4) If Byte1=0x06(MAC Address) at Input value, the return value should be Ex: MAC address=00:22:64:7E:2C:82 Byte1=0x06 (same as Byte1 at Input value) Byte2=0x00, Byte3=0x22, Byte4=0x64, Byte5=0x7E, Byte6=0x2C, Byte7=0x82 Byte8~9 are reserved, should be 0x00.					
WOL	8	g	F0	000: Off	38 30 31 67 F0 30 30 30 0D	38 30 31 72 F0 30 30 30 0D
				001: On		38 30 31 72 F0 30 30 31 0D
Image Noise Reduction	8	g	F1	000 : Off	38 30 31 67 F1 30 30 30 0D	38 30 31 72 F1 30 30 30 0D
				001 : On (High)		38 30 31 72 F1 30 30 31 0D

Note: When the monitor is in standby or Android off mode, the only workable RS232 command is "Android On".

LAN commands work only when the monitor is powered on (Android on).