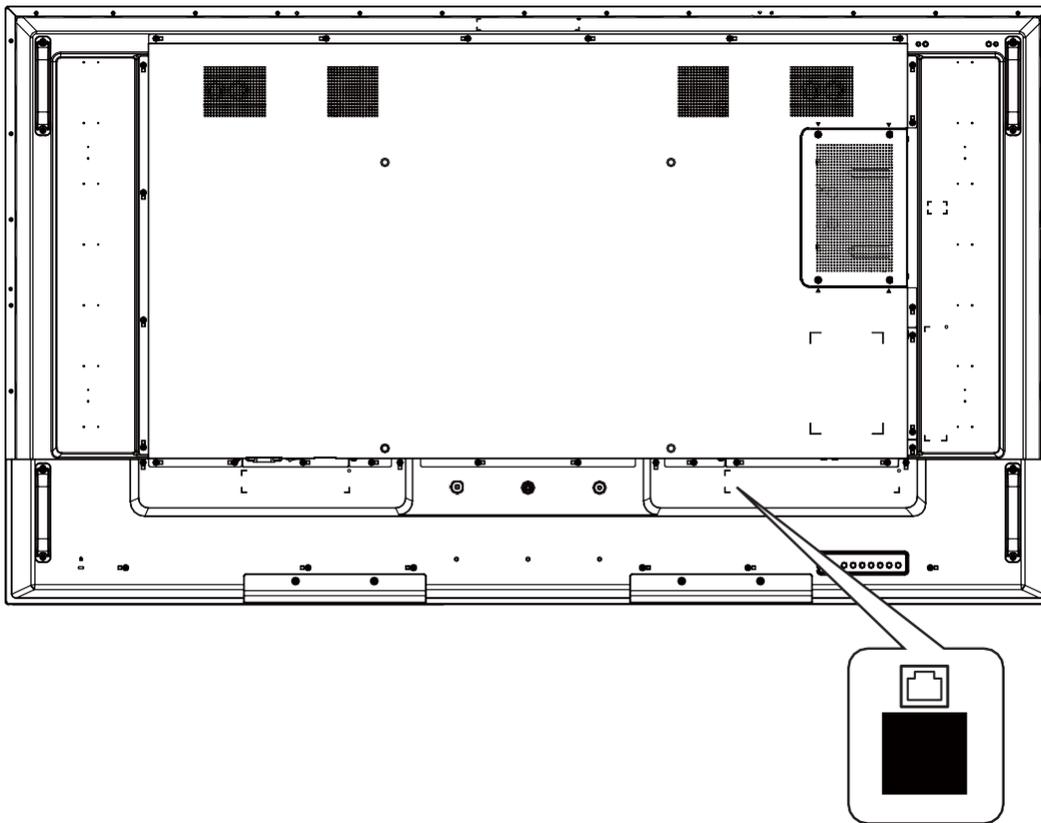


Hisense

EXTERNAL RS232 CONTROL GUIDE



E SERIES | M SERIES | WR SERIES

INTRODUCTION

Our users can control a Hisense display from an external source via RS-232. This user guide will provide all of the command structures and system parameters required to confidently control Hisense commercial displays via a PC or a 3rd party control system.

FORMATS

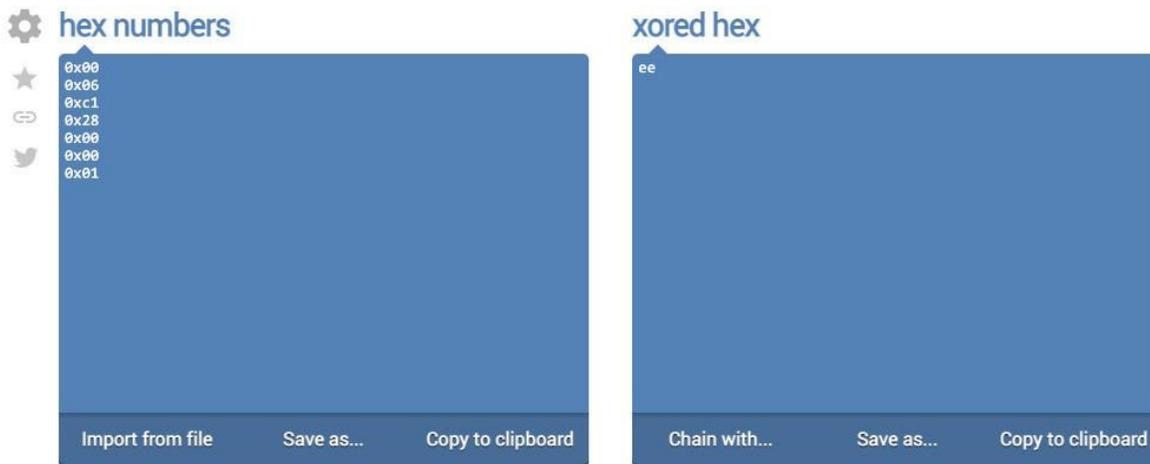
HISENSE RS232 commands are HEX codes, not ASCII format.

Where applicable, codes contain the ID of the screen you are trying to control. A value of "00" will broadcast the command to all of the screens connected to the RS232 port, for this case, there is no feedback from devices. This might be all of the panels in a video wall daisy chained together for control. A value of "01" for example, will lead to control of the panel with ID 01 only. The default ID of the device is 01, each device in a video wall must set a unique ID. If the ID in command is different with the device ID, there is no feedback from device and this command cannot work. Depending on device configuration, some commands may not work, please check details below.

If you encounter problems when using RS-232 command, for example, the command cannot find or work, please try to upgrade device software to latest version.

RS232 commands require an XOR operation on some of its HEX bytes in order to generate the "checksum byte". Example codes are given and XOR calculations can be made using this online calculator: <https://onlinehextools.com/xor-hex-numbers>

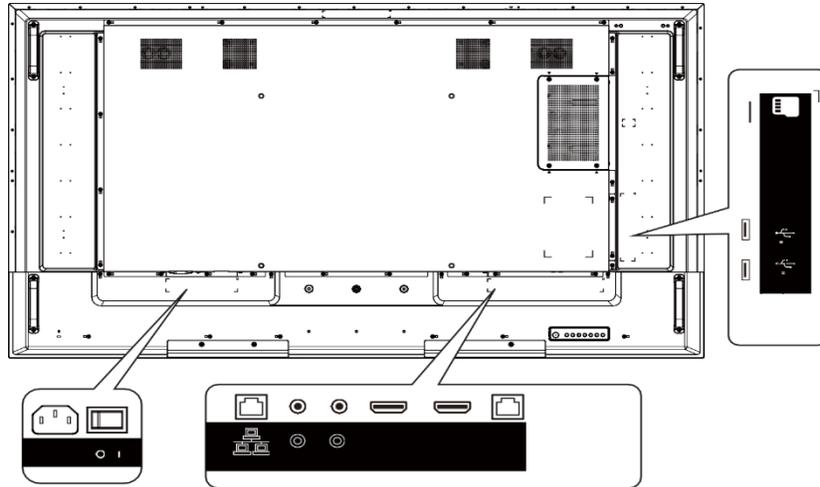
Each HEX number from the code that needs to be XORed is input into the left hand box on the page, each on a separate line. The XORed result is shown in the right hand box on the page.



You may install USB-to-Serial Bridge Driver, and RS232 serial terminal software on your PC, for example, Hercules SETUP utility or SSCOM.

E SERIES - DIGITAL SIGNAGE

Connectivity Diagram



Included in the box - 1 x RJ45 - RS-232 cable

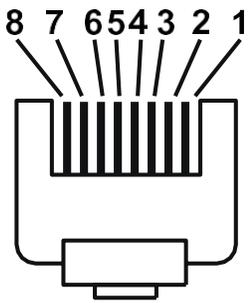
RS232 Connectivity Illustration

The following graphs illustrate the connectivity between a PC and the device. There is already a RJ45-RS232 cable in box, if you'd like to use USB port on PC, you may want to prepare a USB-RS232 cable in advance, please note that the DB-9 connectors of the two cables should be male/female in pairs for this case.

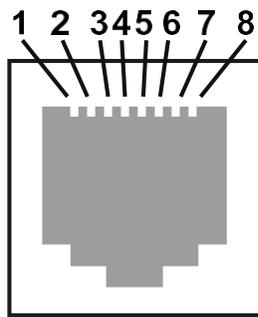


Pin Configuration

Rj-45 Jack (Male)

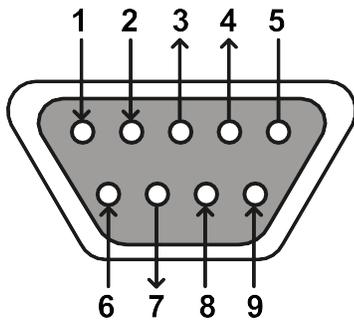


Rj-45 Jack (Female)

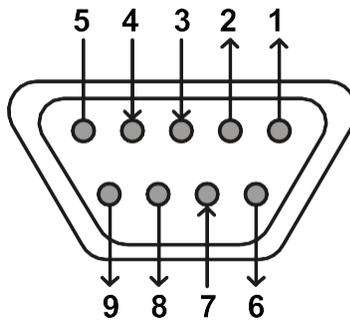


Pin	Signal
1	
2	
3	
4	GND
5	RX
6	
7	TX
8	

DB-9 Male



DB-9 Female



Pin	Signal
1	
2	RX
3	TX
4	
5	GND
6	
7	
8	

Please use table below when wiring a cable:

Pin out Connection	
RJ45	DB-9F
1	
2	
3	
4	5
5	3
6	
7	2
8	

Data Parameters

E-SERIES	
Baud Rate	115200
Data length (bits)	8
Parity	None
Stop bit	1
Flow control	None

Command Format

PC -> TV:

This defines the command host controller to monitor.

Format:

Header	Monitor ID	Category	Code 0	Code 1	Length	Data Control	Command	Checksum
1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	Empty or Data(0) - Data(N) N is 0-36	1 byte

Number of Field	Name of Field	Description
Byte 1	Header	Header=0xA6
Byte 2	Monitor ID	Monitor ID range: 0x01 - 0xFF
Byte 3	Category	Category = 0x00 (fixed)
Byte 4	Code 0	Code 0 = 0x00 (fixed)
Byte 5	Code 1	Code 1 = 0x00 (fixed)
Byte 6	Length	Length = N + 3, where N is value in field Command "Data(N)"
Byte 7	Data Control	Data Control = 0x01 (fixed)
Byte 8 - Byte 44	Command	Data(0) - Data(N) This field can be empty, if it is not empty, the range of N is: 0 - 36
Last Byte	Checksum	All bytes except last byte calculated by XOR

TV -> PC:

This defines the feedback command from monitor to host controller when it receives the display command from the host controller.

Note: there is no reply message when the wrong ID address is being used.

Format:

Header	Monitor ID	Category	Code 0	Length	Data Control	Command	Result	Checksum
1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	1 byte	Data(0) - Data(N) N is 0-36	1 byte

Number of Field	Name of Field	Description
Byte 1	Header	Header=0x21
Byte 2	Monitor ID	Monitor ID range: 0x01 - 0xFF
Byte 3	Category	Category = 0x00 (fixed)
Byte 4	Code 0	Code 0 = 0x00 (fixed)
Byte 5	Length	For feedback of "set" command, length = 0x04 For feedback of "get" command, length is the number of rest bytes in this message
Byte 6	Data Control	Data Control = 0x01 (fixed)
Byte 7	Command	For feedback of "set" command, 0x00 (fixed) For feedback of "get" command, it is same as the Data(0) of command in message PC-> TV
Byte 8-N	Result	Data(0) - Data(N), the range of N is: 0 - 36 For feedback of "set" command: <ol style="list-style-type: none"> 1. 0x00: Completed, normal response. 2. 0x01: Limit Over, the packet was received normally, but the data value was over the upper limit. 3. 0x02: Limit Over, the packet was received normally, but the data value was over the lower limit. 4. 0x03: Command cancelled, the packet is received normally but either the value of data is incorrect, or the request is not permitted for the current host. 5. 0x04: Parse Error, received not defined format data or checksum error. For feedback of "get" command, the result depends on Data(1)-Data(N) in "get" command.
Last Byte	Checksum	All bytes except last byte calculated by XOR

RS232 Commands

The following commands are applicable for both Hisense digital signage E series and window facing products:

Name	Set	Get	Code	Example (PC->TV)	Example (TV->PC)	Note
Set Volume	✓		0x44	0xA6 0x01 0x00 0x00 0x00 0x04 0x01 0x44 data(1) checksum data(1): Volume (0-100) ex: set volume to 77 A601000000401444DAB	210100000401000025	RS232
Get Volume		✓	0x45	A60100000030145E0	Current volume is 77 210100000401454D2D	RS232

Set Video Params	✓		0x32	<p>0xA6 0x01 0x00 0x00 0x00 0x0A 0x01 0x32 data(1) data(2) data(3) data(4) data(5) data(6) data(7) checksum data(1): PICMODE In OSD data(2): Brightness in OSD (0-100), data(3): Contrast (0-100) data(4): Colour Temperature (0-normal /1-cool/2-warm) data(5): Overscan(0-close/1-open) data(6): PCMode(0-Auto/1-PC/2-video)</p> <p>PICMODE: HI_MW_PICMODE_USER = 3, HI_MW_PICMODE_AIRPORT = 7, HI_MW_PICMODE_HOTEL = 8, HI_MW_PICMODE_DINING = 9, HI_MW_PICMODE_SECURITY = 10, HI_MW_PICMODE_OFFICE = 11, HI_MW_PICMODE_OUTDOOR = 12</p> <p>ex: PICMODE is user, brightness 32, contrast 32, cool, overscan on, PC A601000000901320320200101019F</p>	210100000401000025	RS232																										
Get Video Params		✓	0x33	A6010000003013396	PICMODE is user, brightness 32, contrast 32, cool, overscan on, PC 210100000A01330320200101011a	RS232																										
Set Sound Mode and Balance	✓		0x42	<p>0xA6 0x01 0x00 0x00 0x00 0x05 0x01 0x42 data(1) data(2) checksum data(1): STANDARD - 0x00 NEWS - 0x01 MUSIC - 0x02 MOVIE - 0x03 data(2): balance value - OSD value is -50 to 50, corresponding value here is from 0 to 100</p> <p>ex: STANDARD, balance value is -50 A601000000501420000E1</p>	210100000401000025	RS232																										
Get Sound Mode and Balance		✓	0x43	A60100000030143E6	Current mode is STANDARD, balance value is -50 21010000050143000067	RS232																										
Set Key (simulate Remote Controller Key)	✓		0xB0	<p>0xA6 0x01 0x00 0x00 0x00 0x05 0x01 0xB0 data(1) data(2) checksum data(1): IR Key(High) data(2): IR Key(low)</p> <table border="1"> <thead> <tr> <th>Key</th> <th>Key Value</th> </tr> </thead> <tbody> <tr> <td>Power</td> <td>0x74</td> </tr> <tr> <td>Setting</td> <td>0xFD</td> </tr> <tr> <td>Up</td> <td>0x67</td> </tr> <tr> <td>Down</td> <td>0x6C</td> </tr> <tr> <td>OK</td> <td>0x1C</td> </tr> <tr> <td>RIGHT</td> <td>0x6A</td> </tr> <tr> <td>LEFT</td> <td>0x69</td> </tr> <tr> <td>Home</td> <td>0x66</td> </tr> <tr> <td>Vol+</td> <td>0x73</td> </tr> <tr> <td>Vol-</td> <td>0x72</td> </tr> <tr> <td>Return</td> <td>0x9E</td> </tr> <tr> <td>Source</td> <td>0xFA</td> </tr> </tbody> </table> <p>ex: set volume to 0 - mute A601000000501B0007162</p>	Key	Key Value	Power	0x74	Setting	0xFD	Up	0x67	Down	0x6C	OK	0x1C	RIGHT	0x6A	LEFT	0x69	Home	0x66	Vol+	0x73	Vol-	0x72	Return	0x9E	Source	0xFA	210100000401000025	RS232
Key	Key Value																															
Power	0x74																															
Setting	0xFD																															
Up	0x67																															
Down	0x6C																															
OK	0x1C																															
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Home	0x66																															
Vol+	0x73																															
Vol-	0x72																															
Return	0x9E																															
Source	0xFA																															

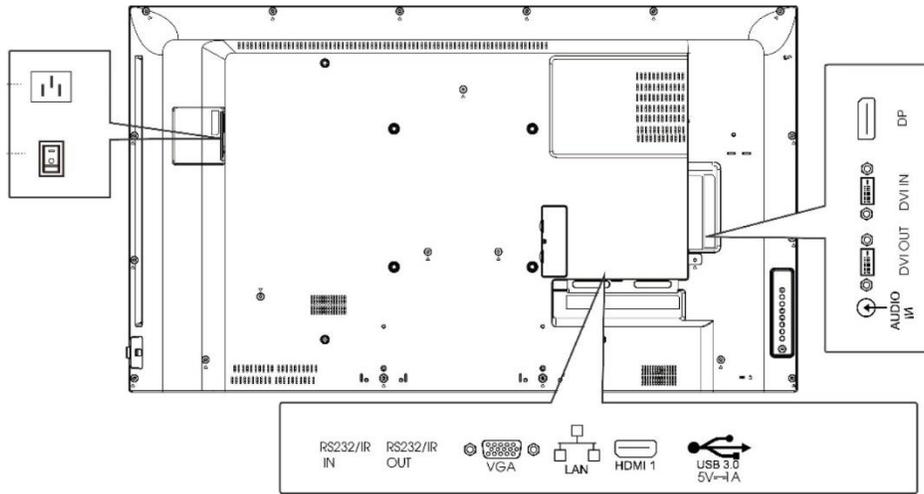
Set Input Source	✓		0xAC	0xA6 0x01 0x00 0x00 0x00 0x04 0x01 0xAC data(1) checksum data(1):HDMI1-0x0D HDMI2-0x06 CMS-0x15 Media-0x16 Custom-0x18 (available only when set in Setting menu) USB-0x0C ex: change source to HDMI1 A601000000401AC0D03	210100000401000025	RS232
Get Input Source		✓	0xAD	A6010000000301AD08	Current source is HDMI1 210100000401AD0D85	RS232
Set Power on/off	✓		0x18	0xA6 0x01 0x00 0x00 0x00 0x04 0x01 0x18 data(1) checksum data(1): Power off-0x01 Power On -0x02 ex: A60100000004011801BB power off A60100000004011802B8 power on	210100000401000025	RS232 "Uart Wake" must set to "On"
Get Power On/Off state		✓	0x19	A601000000030119BC	Current state is on 21010000040119023E	RS232 "Uart Wake" must set to "On"
Set Power On mode	✓		0xA3	Power on mode: 0: Standby 1: Power On 2: Last status ex: A6010000000401A30001 set power on mode to "Standby"	210100000401000025	RS232
Set Screen Aspect Ratio	✓		0x3A	0xA6 0x01 0x00 0x00 0x00 0x04 0x01 0x3A data(1) checksum data(1): Full-0x00 Real-0x01 4:3-0x02 14:9-0x03 ex: Aspect Ratio is Full A60100000004013A0098	210100000401000025	IP Control
Get Screen Aspect Ratio		✓	0x3B	A60100000003013B9E data(1): Full-0x00 Real-0x01 4:3-0x02 14:9-0x03	Current Aspect Ratio is Full 2101000004013B001E	IP Control
Set Video Params	✓		0x32	0xA6 0x01 0x00 0x00 0x00 0x0A 0x01 0x32 data(1) data(2) data(3) data(4) data(5) data(6) data(7) checksum data(1): PICMODE In OSD data(2): Brightness in OSD (0-100), data(3): Contrast (0-100) data(4): Colour Temperature (0-normal /1-cool/2-warm) data(5): Overscan(0-close/1-open) data(6): PCMode(0-Auto/1-PC/2-video) data(7): Sharpness in OSD(0-100) PICMODE: HI_MW_PICMODE_USER = 3, HI_MW_PICMODE_AIRPORT = 7, HI_MW_PICMODE_HOTEL = 8, HI_MW_PICMODE_DINING = 9, HI_MW_PICMODE_SECURITY = 10, HI_MW_PICMODE_OFFICE = 11, HI_MW_PICMODE_OUTDOOR = 12 ex: PICMODE is user, brightness 32, contrast 32, cool, overscan on, PC, Sharpness 50 – IP Control Only A601000000A013203202001010132AE	210100000401000025	IP Control

Get Video Params		✓	0x33	A6010000003013396	PICMODE is user, brightness 32, contrast 32, cool, overscan on, PC, Sharpness 50 210100000A01330320200101013226	IP Control
Set Remote Control Lock Mode	✓		0x1C	0xA6 0x01 0x00 0x00 0x00 0x04 0x01 0x1C data(1) checksum data(1): unlock-0x01 lock-0x02 ex: A6010000004011C01BF - unlock A6010000004011C02BC - lock	210100000401000025	IP Control
Get Remote Control Lock Mode		✓	0x1D	A6010000003011DB8	Current state is lock 2101000004011D023A	IP Control
Set Schedule for power on/off	✓		0x5A	0xA6 0x01 0x00 0x00 0x00 0x0C 0x01 0x5A data(1) data(2) data(3) data(4) data(5) data(6) data(7) data(8) data(1): bit 7-bit 4: 1 to 7 of the scheduling pages, bit 3 - bit 0: Page disable-0 Page enable-1 data(2): Start time hour(0-23) data(3): Start time minute(0-59) data(4): End time hour(0-23) data(5): End time minute(0-59) data(6): HDMI2-0x06 USB-0x0C HDMI1-0x0D CMS-0x12 Media Player-0x16 Custom-0x18 data(7): Saturday-Bit0 Friday-Bit1 Thursday-Bit2 Wednesday-Bit3 Tuesday-Bit4 Monday-Bit5 Sunday-Bit6 every week-Bit7 data(8): For Media Player none-0x00 Tag 1-0x01 Tag 2-0x02 Tag 3-0x03 Tag 4-0x04 Tag 5-0x05 Tag 6-0x06 Tag 7-0x07 data(9): Volume (0-100) ex: page 5, enable (00110001 = 0x51), power on at 13:00, power off at: 13:05, source HDMI2, every Monday, volume 50 A601000000C015A510D000D0506A0003230	210100000401000025	IP Control
Get Schedule		✓	0x5B	0xA6 0x01 0x00 0x00 0x00 0x04 0x01 0x5B data(1) checksum Data(1): 1 to 7 of the scheduling pages ex: get schedule of page 1 A6010000004015B01F8	enable, power on at 13:00, power off at: 13:05, source HDMI2, every Monday, volume 50 210100000C015B010D000D05 06A00032E6	IP Control
Set Screen on/off & power off	✓		0x18	0xA6 0x01 0x00 0x00 0x00 0x04 0x01 0x18 data(1) checksum data(1): power off-0x01 screen on-0x03 screen off -0x04 ex: A6010000004011801BB power off A6010000004011803B9 screen on A6010000004011804BE screen off	210100000401000025	IP Control

Set Key (simulate Remote Controller Key)	✓	0xB0	<p>0xA6 0x01 0x00 0x00 0x00 0x05 0x01 0xB0 data(1) data(2) checksum data(1): IR Key(High) data(2): IR Key(low)</p> <table border="1" data-bbox="526 296 1060 835"> <thead> <tr> <th>Key</th> <th>Key Value</th> <th>Key</th> <th>Key Value</th> </tr> </thead> <tbody> <tr><td>KEY_1</td><td>0x02</td><td>KEY_DOWN</td><td>0x6C</td></tr> <tr><td>KEY_2</td><td>0x03</td><td>KEY_MUTE</td><td>0x71</td></tr> <tr><td>KEY_3</td><td>0x04</td><td>KEY_VOLUMEDOWN</td><td>0x72</td></tr> <tr><td>KEY_4</td><td>0x05</td><td>KEY_VOLUMEUP</td><td>0x73</td></tr> <tr><td>KEY_5</td><td>0x06</td><td>KEY_POWER</td><td>0x74</td></tr> <tr><td>KEY_6</td><td>0x07</td><td>KEY_BACK</td><td>0x9E</td></tr> <tr><td>KEY_7</td><td>0x08</td><td>KEY_PLAY/PAUSE</td><td>0xA4</td></tr> <tr><td>KEY_8</td><td>0x09</td><td>KEY_STOP</td><td>0xA6</td></tr> <tr><td>KEY_9</td><td>0x0A</td><td>KEY_REWIND</td><td>0xA8</td></tr> <tr><td>KEY_0</td><td>0x0B</td><td>KEY_FASTFORWARD</td><td>0xD0</td></tr> <tr><td>KEY_OK</td><td>0x1C</td><td>KEY_SOURCE</td><td>0xFA</td></tr> <tr><td>KEY_HOME</td><td>0x66</td><td>KEY_MENU</td><td>0xFD</td></tr> <tr><td>KEY_UP</td><td>0x67</td><td>KEY_INFO</td><td>0x166</td></tr> <tr><td>KEY_LEFT</td><td>0x69</td><td>KEY_CMS</td><td>0x0305</td></tr> <tr><td>KEY_RIGHT</td><td>0x6A</td><td>KEY_TIME</td><td>0x0309</td></tr> </tbody> </table> <p>ex: set volume to 0 - mute A601000000501B0007162</p>	Key	Key Value	Key	Key Value	KEY_1	0x02	KEY_DOWN	0x6C	KEY_2	0x03	KEY_MUTE	0x71	KEY_3	0x04	KEY_VOLUMEDOWN	0x72	KEY_4	0x05	KEY_VOLUMEUP	0x73	KEY_5	0x06	KEY_POWER	0x74	KEY_6	0x07	KEY_BACK	0x9E	KEY_7	0x08	KEY_PLAY/PAUSE	0xA4	KEY_8	0x09	KEY_STOP	0xA6	KEY_9	0x0A	KEY_REWIND	0xA8	KEY_0	0x0B	KEY_FASTFORWARD	0xD0	KEY_OK	0x1C	KEY_SOURCE	0xFA	KEY_HOME	0x66	KEY_MENU	0xFD	KEY_UP	0x67	KEY_INFO	0x166	KEY_LEFT	0x69	KEY_CMS	0x0305	KEY_RIGHT	0x6A	KEY_TIME	0x0309	210100000401000025	IP Control
Key	Key Value	Key	Key Value																																																																		
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KEY_8	0x09	KEY_STOP	0xA6																																																																		
KEY_9	0x0A	KEY_REWIND	0xA8																																																																		
KEY_0	0x0B	KEY_FASTFORWARD	0xD0																																																																		
KEY_OK	0x1C	KEY_SOURCE	0xFA																																																																		
KEY_HOME	0x66	KEY_MENU	0xFD																																																																		
KEY_UP	0x67	KEY_INFO	0x166																																																																		
KEY_LEFT	0x69	KEY_CMS	0x0305																																																																		
KEY_RIGHT	0x6A	KEY_TIME	0x0309																																																																		

M SERIES - 24/7 DIGITAL SIGNAGE

Connectivity Diagram



Included in the box - 1 x RJ45 - RS-232 cable

RS232 Connectivity Illustration

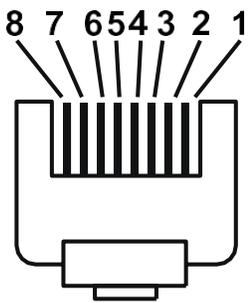
The following graphs illustrate the connectivity between a PC and the device.

There is already a RJ45-RS232 cable in box, if you'd like to use USB port on PC, you may want to prepare a USB-RS232 cable in advance, please note that the DB-9 connectors of the two cables should be male/female in pairs for this case.

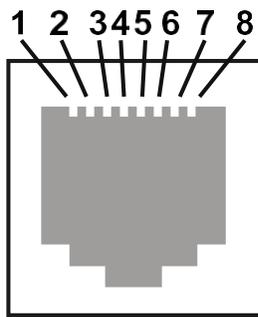


Pin Configuration

Rj-45 Jack (Male)

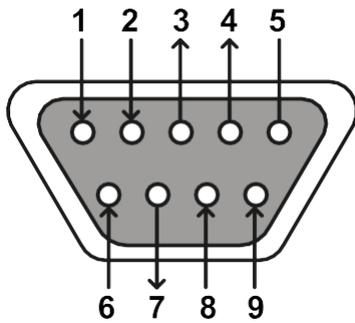


Rj-45 Jack (Female)

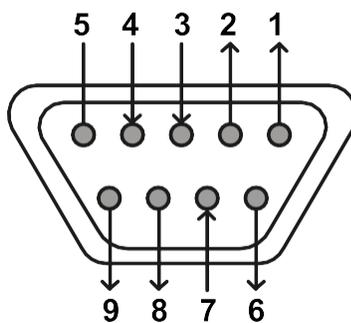


Pin	Signal
1	
2	
3	GND
4	
5	RX
6	
7	
8	TX

DB-9 Male



DB-9 Female



Pin	Signal
1	
2	RX
3	TX
4	
5	GND
6	
7	
8	

Please use table below when wiring a cable:

Pin out Connection	
RJ45	DB-9F
1	
2	
3	5
4	
5	3
6	
7	
8	2

Data Parameters

M-SERIES	
Baud Rate	9600
Data length (bits)	8
Parity	None
Stop bit	1
Flow control	None

Command Format

PC -> TV:

Header (2 Bytes)		Length (2 Bytes)		Command (4 Bytes)				Monitor ID (1 Byte)	Data (N Bytes)			Checksum (1 Bytes)	End (2 Bytes)	
DD	FF												BB	CC

TV -> PC:

Header (2 Bytes)		Length (2 Bytes)		Command (4 Bytes)				Monitor ID (1 Byte)	Data (N Bytes)			Checksum (1 Bytes)	End (2 Bytes)	
AB	AB												CD	CD

Note:

1. Length is the number of bytes of Command, Data and Checksum
2. Checksum is XOR of Length, Command, Monitor ID and Data

RS232 Command

Description	Command (HEX Bytes)	Example (PC -> TV ID 01)	TV -> PC
Power On	DD FF 00 08 C1 15 00 00 xx BB BB yy BB CC	Ddff0008C115000001BBBDDDBCC	AB AB 00 08 C1 15 00 00 xx BB BB yy CD CD When TV is in standby state, send this command will get one feedback from TV, once TV starts up, it will send feedback again.
Power Off	DD FF 00 08 C1 15 00 00 xx AA AA yy BB CC	Ddff0008C115000001AAAADDBCC	AB AB 00 08 C1 15 00 00 xx AA AA yy CD CD
Screen Off	DD FF 00 07 C1 31 00 00 xx 00 yy BB CC	Ddff0007C13100000100F6BBCC	AB AB 00 07 C1 31 00 00 xx 00 yy CD CD
Screen On	DD FF 00 07 C1 31 00 00 xx 01 yy BB CC	Ddff0007C13100000101F7BBCC	AB AB 00 07 C1 31 00 00 xx 01 yy CD CD
Reboot	DD FF 00 06 C1 1E 00 00 xx yy BB CC	Ddff0006C11E000001D8BBCC	AB AB 00 06 C1 1E 00 00 xx yy CD CD
Set AC Power On Mode	DD FF 00 07 C1 FF 00 09 xx zz yy BB CC	Ddff0007C1FF0009010031BBCC	AB AB 00 07 C1 FF 00 09 xx zz yy CD CD
DP Input	DD FF 00 07 C1 08 00 00 xx 16 yy BB CC	Ddff0007C10800000116D9BBCC	AB AB 00 07 C1 08 00 00 xx 16 yy CD CD
VGA Input	DD FF 00 07 C1 08 00 00 xx 17 yy BB CC	Ddff0007C10800000117D8BBCC	AB AB 00 07 C1 08 00 00 xx 17 yy CD CD
HDMI1 Input	DD FF 00 07 C1 08 00 00 xx 0E yy BB CC	Ddff0007C1080000010EC1BBCC	AB AB 00 07 C1 08 00 00 xx 0E yy CD CD
HDMI2 Input	DD FF 00 07 C1 08 00 00 xx 0F yy BB CC	Ddff0007C1080000010FC0BBCC	AB AB 00 07 C1 08 00 00 xx 0F yy CD CD
PC Input	DD FF 00 07 C1 08 00 00 xx 0C yy BB CC	Ddff0007C1080000010CC3BBCC	AB AB 00 07 C1 08 00 00 xx 0C yy CD CD
DVI Input	DD FF 00 07 C1 08 00 00 xx 09 yy BB CC	Ddff0007C10800000109C6BBCC	AB AB 00 07 C1 08 00 00 xx 09 yy CD CD
Set Screen Aspect Ratio	DD FF 00 07 C1 35 00 00 xx zz yy BB CC Once this command is set, reboot TV, it will show with expected ratio	ex: set screen ratio 90 degrees Ddff0007C13500000109FBBCC zz = 00 - 0 degree, 01 - 90 degree	AB AB 00 07 C1 35 00 00 xx zz yy CD CD

Set Mute	DD FF 00 07 C1 26 00 00 xx 01 yy BB CC	DDFF0007C12600000101E0BBCC	AB AB 00 07 C1 26 00 00 xx 01 yy CD CD
Set Unmute	DD FF 00 07 C1 26 00 00 xx 00 yy BB CC	DDFF0007C12600000100E1BBCC	AB AB 00 07 C1 26 00 00 xx 00 yy CD CD
Set Volume	DD FF 00 07 C1 27 00 00 xx zz yy BB CC	DDFF0007C12700000101E1BBCC zz: volume range 0-100	AB AB 00 07 C1 27 00 00 xx zz yy CD CD
Set Backlight Brightness	DD FF 00 08 C1 32 00 00 xx 06 zz yy BB CC	ex: set brightness to 32 - zz = 0x20 DDFF0008C1320000010620DCBBCC	AB AB 00 08 C1 32 00 00 xx 06 zz CD CD
Set Backlight Brightness Auto Adjust	DD FF 00 07 C1 34 00 00 xx zz yy BB CC	ex: set brightness auto adjust on DDFF0007C13400000100F3BBCC zz = 00 - on, 01 - off	AB AB 00 07 C1 34 00 00 xx zz yy CD CD
Set Date	DD FF 00 09 C1 1C 00 00 xx zz zz yy BB CC	ex: set date to 23.Jan.2 DDFF0009C11C000001170102C1BBCC zz zz = Year Month Day	AB AB 00 09 C1 1C 00 00 xx zz zz yy CD CD zz zz = FF FF FF when error
Set Time	DD FF 00 09 C1 1D 00 00 xx zz zz yy BB CC	ex: set time to 12:25:2 DDFF0009C11D0000010C1902C3BBCC zz zz = Hour Minute Second	AB AB 00 09 C1 1D 00 00 xx zz zz yy CD CD zz zz = FF FF FF when error
Set Schedule for Power On	DD FF 00 09 C1 3E 00 00 xx tt zz yy BB CC	ex: power on at 9:10 every day DDFF0009C13E00000101090AF5BBCC tt = 00 - turn off schedule, 01 - everyday zz zz = Hour Minute	AB AB 00 09 C1 3E 00 00 xx zz zz yy CD CD
Set Schedule for Power Off	DD FF 00 09 C1 3F 00 00 xx tt zz yy BB CC	ex: power off at 18:10 every day DDFF0009C13F00000101120AEFBBCC tt = 0 - turn off schedule, 1 - everyday zz zz = Hour Minute	AB AB 00 09 C1 3F 00 00 xx zz zz yy CD CD
Set Brightness	DD FF 00 07 C1 36 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set brightness to 32 - zz = 0x20 DDFF0007C13600000120D1BBCC	AB AB 00 07 C1 36 00 00 xx zz yy CD CD
Set Contrast	DD FF 00 07 C1 37 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set contrast to 32 - zz = 0x20 DDFF0007C13700000120D0BBCC	AB AB 00 07 C1 37 00 00 xx zz yy CD CD
Set Sharpness	DD FF 00 07 C1 38 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set sharpness to 32 - zz = 0x20 DDFF0007C13800000120DFBBCC	AB AB 00 07 C1 38 00 00 xx zz yy CD CD
Set Color Temperature	DD FF 00 07 C1 39 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set colour temperature to 32 - zz = 0x20 DDFF0007C13900000120DEBBCC	AB AB 00 07 C1 39 00 00 xx zz yy CD CD
Set Noise Reduction	DD FF 00 07 C1 3A 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set noise reduction to High - zz = 0x03 DDFF0007C13A00000103FEBBCC zz = 01 - low, 02 - medium, 03 - high, 04 - auto, 00 - off	AB AB 00 07 C1 3A 00 00 xx zz yy CD CD

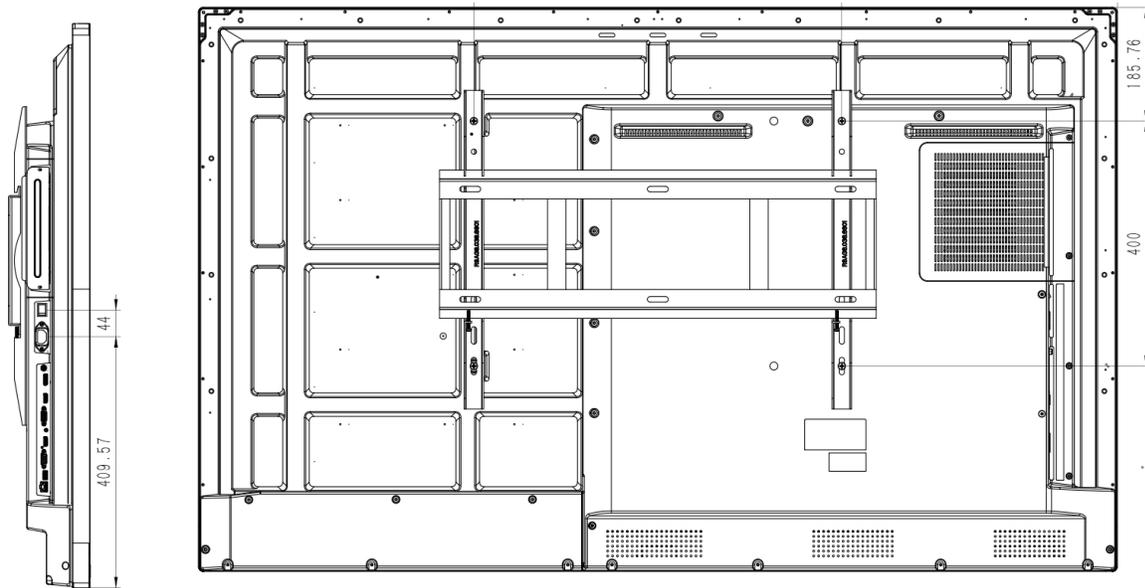
Set Image Scaling	DD FF 00 07 C1 3B 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set image scaling to Full - zz = 0x03 DDFF0007C13B00000103FFBBCC zz = 00 - full, 01 - 16:9, 02 - 4:3, 03 - scaling 1, 04 - scaling 2, 05 - point to point	AB AB 00 07 C1 3B 00 00 xx zz yy CD CD												
Set Picture Mode	DD FF 00 07 C1 0F 06 00 xx zz yy BB CC	ex: set picture mode to movie mode - zz = 0x03 DDFF0007C10F060001030CBCC zz = 00 - standard, 01 - bright, 02 - soft, 03 - Movie, 04 - Text, 5 - gaming 12 - natural	AB AB 00 07 C1 0F 06 00 xx zz yy CD CD												
Set Sound Mode	DD FF 00 07 C1 FF 00 03 xx zz yy BB CC	ex: set sound mode to standard mode - zz = 0x00 DDFF0007C1FF000301003BBCC zz = 00 - standard, 01 - music, 02 - news, 08 - movie, 10 - sports, 20 - custom, 30 - voice, 40 - meeting	AB AB 00 07 C1 FF 00 03 xx zz yy CD CD												
Set Eye Protection Mode	DD FF 00 07 C1 FF 00 1E xx zz yy BB CC	ex: set eye protection mode on - zz = 0x01 DDFF0007C1FF001E010127BBCC zz = 00 - off, 01 - on	AB AB 00 07 C1 FF 00 1E xx zz yy CD CD												
VGA Auto Adjust	DD FF 00 07 C1 01 00 00 xx yy BB CC current source must be VGA	ex: VGA Auto Adjust DDFF0007C101000001C6BBCC zz = 00 - off, 01 - on	AB AB 00 07 C1 01 00 00 xx yy CD CD												
Set anti-burn-in (image retention)	DD FF 00 07 C1 33 00 00 xx zz yy BB CC	ex: set anti-burn-in on DDFF0007C13300000101F4BBCC zz = 00 - off, 01 - on	AB AB 00 07 C1 33 00 00 xx zz yy CD CD												
Set Power on delay	DD FF 00 07 C1 3C 00 00 xx zz yy BB CC	ex: set power on delay to 10s DDFF0007C13C0000010AF1BBCC zz = 00 - off, others - delay time, range: 2s - 255s	AB AB 00 07 C1 3C 00 00 xx zz yy CD CD												
Set Video Wall	DD FF 00 09 C1 0A 00 00 xx zz zz yy BB CC	ex: vertical 3 devices, horizontal 4 devices, device position: 6 DDFF0009C10A000001030406C2BBCC zz: how many devices in vertical zz: how many devices in horizontal zz: current device position	AB AB 00 09 C1 0A 00 00 xx zz zz yy CD CD <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>4</td> <td>5</td> <td style="background-color: yellow;">6</td> </tr> <tr> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>10</td> <td>11</td> <td>12</td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12
1	2	3													
4	5	6													
7	8	9													
10	11	12													
Set Static IP Address of LAN	DD FF 00 16 C1 1B 30 00 xx zz ... zz yy BB CC	Ex: set IP 10.16.150.225, subnet mask: 255.255.248.0, gateway: 10.16.144.1, DNS: 10.16.144.2 DDFF0016C11B3000010A1096E1FFFFF8000A1090010A10900249BBCC zz .. zz - 16 bytes, IP address - 4 bytes, Subnet mask - 4 bytes, gateway - 4 bytes, DNS - 4 bytes	DD FF 00 16 C1 1B 30 00 xx zz ... zz yy BB CC												
Set USB Lock	DD FF 00 07 C1 FF 00 0E xx zz yy BB CC	ex: lock USB DDFF0007C1FF000E010036BBCC zz = 00 - lock USB, 01 - enable USB	AB AB 00 07 C1 FF 00 0E xx zz yy CD CD												
Factory Reset	DD FF 00 06 C1 10 00 00 xx yy BB CC	DDFF0006C110000001D6BBCC	AB AB 00 06 C1 10 00 00 xx yy CD CD												

Query TV Status	DD FF 00 06 C1 28 00 00 xx yy BB CC	DDFF0006C128000001EEBBCC	AB AB 00 0C 28 00 00 xx zz zz zz zz yy CD CD zz: volume zz zz: 05 01 - PC, 05 02 - DVI, 05 03 - DP, 05 04 - HDMI2, 05 05 - HDMI1, 08 01 - VGA zz: 00 - power on, FF - power off zz: 01 - mute; 00 - unmute zz: 00 - no signal, 01 - has signal
Query Screen Status	DD FF 00 06 C1 32 00 00 xx yy BB CC	DDFF0006C110000001D6BBCC	AB AB 00 07 C1 32 00 00 xx zz yy CD CD zz: 00 - screen off; 01 - screen on
Query Source	DD FF 00 06 C1 1A 00 00 xx yy BB CC	DDFF0006C11A000001DCBBCC	AB AB 00 09 C1 1A 00 00 xx zz zz zz yy CD CD zz zz zz - source, refer to user menu for source definition
Query SW Version	DD FF 00 06 C1 1B 00 00 xx yy BB CC	DDFF0006C11B000001DDBBCC	AB AB 00 09 C1 1B 00 00 xx zz zz zz yy CD CD zz zz zz - Year Month Date
Query Backlight Brightness	DD FF 00 06 C1 3E 00 00 xx yy BB CC	DDFF0006C13E000001F8BBCC	AB AB 00 LL C1 3E 00 00 xx zz zz yy CD CD zz: 01 - bright, 02 - soft, 03 - auto adjust, 04 - stereo frequency conversion, 05 - Comfort frequency conversion, 06 - custom zz: when first zz is 06 custom, this byte means backlight brightness value: 0-30 LL: when first zz is zz, LL = 08, otherwise, LL = 07
Query Brightness	DD FF 00 06 C1 36 00 01 xx yy BB CC	DDFF0006C136000101F0BBCC	AB AB 00 07 C1 36 00 01 xx zz yy CD CD zz is the brightness value
Query Network Status	DD FF 00 06 C1 FF 00 16 xx yy BB CC	DDFF0006C1FF0016012FBCC	AB AB 00 07 C1 FF 00 16 xx zz yy CD CD zz: 00 - no network connection; 01 - network connected
Query Sound Mode	DD FF 00 06 C1 FF 00 02 xx yy BB CC	DDFF0006C1FF0002013BBCC	AB AB 00 07 C1 FF 00 02 xx zz yy CD CD zz = 00 - standard, 01 - music, 02 - news, 08 - movie, 10 - sports, 20 - custom, 30 - voice, 40 - meeting
Query AC Power On Status	DD FF 00 06 C1 FF 00 08 xx yy BB CC	DDFF0006C1FF00080131BBCC	AB AB 00 07 C1 FF 00 08 xx zz yy CD CD zz: 00 - power on; 01 - Last mode; 02 - standby
Query IP Address	DD FF 00 06 C1 1B 20 00 xx yy BB CC	DDFF0006C11B200001FDBCC	AB AB 00 16 C1 1B 20 00 xx zz ... zz yy CD CD zz zz zz zz - IP address zz zz zz zz - Subnet mask zz zz zz zz Gateway zz zz zz zz - DNS
Query Device Temperature	DD FF 00 06 C1 FE 00 00 xx yy BB CC	DDFF0006C1FE00000138BBCC	AB AB 00 07 C1 FE 00 00 xx zz yy CD CD zz: temperature in centigrade
Query Eye Protection Mode	DD FF 00 06 C1 FF 00 1D xx yy BB CC	DDFF0006C1FF001D0124BBCC	AB AB 00 07 C1 FF 00 1D xx zz yy CD CD zz: 00 - Off; 01 - On
Query SN	DD FF 00 06 C1 FF 00 0B xx yy BB CC	DDFF0006C1FF000B0132BBCC	AB AB 00 1D C1 FF 00 0B xx zz...zz yy CD CD zz .. zz: 23 bytes
Query Devicd ID	DD FF 00 06 C1 FF 00 0D xx yy BB CC	DDFF0006C1FF000D0134BBCC	AB AB 00 26 C1 FF 00 0D xx zz...zz yy CD CD zz .. zz: 32 bytes
Query MAC Address	DD FF 00 06 C1 6C 00 00 xx yy BB CC	DDFF0006C16C000001AABBCC	AB AB 00 0E C1 6C 00 00 xx zz...zz yy CD CD zz .. zz: 8 bytes
Send Remote Controller Key Code	DD FF 00 08 C1 17 00 00 xx zz zz yy BB CC	ex: send menu key: zz zz = 00 00 DDFF0008C1170000010000DFBBCC zz zz = 00 00 - Menu; 00 01 - UP, 00 02 -	N/A

		DOWN, 00 03 - LEFT, 00 04 - RIGHT, 00 05 - OK, 00 06 - Return, 00 07 - Source	
Open Setting Menu	DD FF 00 06 C1 41 00 00 xx yy BB CC	DFFF0006C14100000187BBCC	AB AB 00 06 C1 41 00 00 xx yy CD CD
Open Home	DD FF 00 06 C1 FF 00 1A xx yy BB CC	DFFF0006C1FF001A0123BBCC	AB AB 00 06 C1 FF 00 1A xx yy CD CD
Open CMS	DD FF 00 06 C1 FF 00 13 xx yy BB CC	DFFF0006C1FF0013012ABBCC	AB AB 00 06 C1 FF 00 13 xx yy CD CD
Open ScreenShare	DD FF 00 06 C1 43 00 00 xx yy BB CC	DFFF0006C14300000185BBCC	AB AB 00 06 C1 43 00 00 xx yy CD CD
Turn on Hotspot	DD FF 00 06 C1 44 00 00 xx yy BB CC	DFFF0006C14400000182BBCC	AB AB 00 06 C1 44 00 00 xx yy CD CD
Take Screenshot	DD FF 00 06 C1 4B 00 00 xx yy BB CC	DFFF0006C14B0000018DBBCC	AB AB 00 06 C1 4B 00 00 xx yy CD CD
Freeze Screen	DD FF 00 06 C1 0F 08 00 xx zz yy BB CC	DFFF0006C10F08000101E2BBCC zz = 01 - freeze; 00 - unfreeze	AB AB 00 06 C1 0F 08 00 xx zz yy CD CD

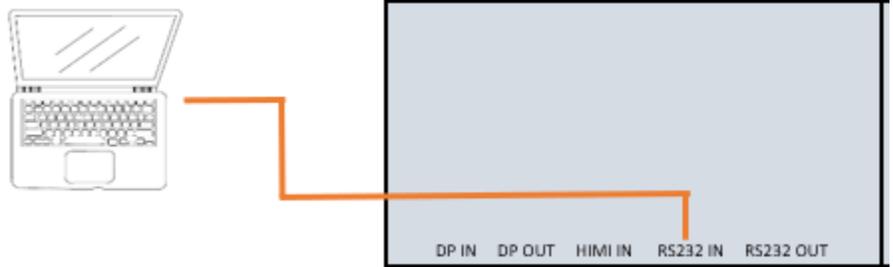
WR INTERACTIVE TOUCH DISPLAYS

Connectivity Diagram



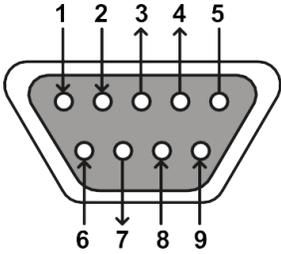
RS232 Connectivity Illustration

The following graphs illustrate the connectivity between a PC and the device by using USB port on PC. You may prepare a USB-RS232 cable like below in advance.

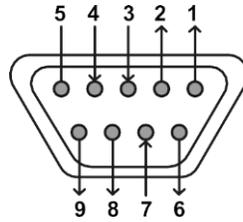


Pin Configuration

DB-9 Male



DB-9 Female



Pin	Signal
1	
2	RX
3	TX
4	
5	GND
6	
7	
8	

Data Parameters

WR-SERIES	
Baud Rate	9600
Data length (bits)	8
Parity	None
Stop bit	1
Flow control	None

Command Format

PC -> TV:

Header (2 Bytes)		Length (2 Bytes)		Command (4 Bytes)				Monitor ID (1 Byte)	Data (N Bytes)			Checksum (1 Bytes)	End (2 Bytes)	
DD	FF												BB	CC

TV -> PC:

Header (2 Bytes)		Length (2 Bytes)		Command (4 Bytes)				Monitor ID (1 Byte)	Data (N Bytes)			Checksum (1 Bytes)	End (2 Bytes)	
AB	AB												CD	CD

Note:

1. Length is the number of bytes of Command, Data and Checksum
2. Checksum is XOR of Length, Command, Monitor ID and Data

RS232 Command-WR6CE/WR6BE

Description	Command (HEX Bytes)	Example (PC -> TV ID 01)	Command TV -> PC
Power On	DD FF 00 08 C1 15 00 00 xx BB BB yy BB CC	DDFF0008C11500001BBBDDDBCC	AB AB 00 08 C1 15 00 00 xx BB BB yy CD CD When TV is in standby state, send this command will get one feedback from TV, once TV starts up, it will send feedback again.
Power Off	DD FF 00 08 C1 15 00 00 xx AA AA yy BB CC	DDFF0008C11500001AAAADDBCC	AB AB 00 08 C1 15 00 00 xx AA AA yy CD CD
Screen On	DD FF 00 07 C1 31 00 00 xx 00 yy BB CC	DDFF0007C1310000100F6BBCC	AB AB 00 07 C1 31 00 00 xx 00 yy CD CD
Screen Off	DD FF 00 07 C1 31 00 00 xx 01 yy BB CC	DDFF0007C1310000101F7BBCC	AB AB 00 07 C1 31 00 00 xx 01 yy CD CD
Reboot	DD FF 00 06 C1 1E 00 00 xx yy BB CC	DDFF0006C11E00001D8BBCC	AB AB 00 06 C1 1E 00 00 xx yy CD CD
Set AC Power On Mode	DD FF 00 07 C1 FF 00 09 xx zz yy BB CC	DDFF0007C1FF0009010031BBCC	AB AB 00 07 C1 FF 00 09 xx zz yy CD CD
DP	DD FF 00 07 C1 08 00 01 xx 0C yy BB CC	DDFF0007C1080001010CC2BBCC	AB AB 00 07 C1 08 00 01 xx 0C yy CD CD
Type-C	DD FF 00 07 C1 08 00 01 xx 0B yy BB CC	DDFF0007C1080001010BC5BBCC	AB AB 00 07 C1 08 00 01 xx 0B yy CD CD
Front HDMI	DD FF 00 07 C1 08 00 01 xx 05 yy BB CC	DDFF0007C10800010105CBBCC	AB AB 00 07 C1 08 00 01 xx 05 yy CD CD
Side HDMI	DD FF 00 07 C1 08 00 01 xx 06 yy BB CC	DDFF0007C10800010106C8BBCC	AB AB 00 07 C1 08 00 01 xx 06 yy CD CD
OPS	DD FF 00 07 C1 08 00 01 xx 04 yy BB CC	DDFF0007C10800010104CABBCC	AB AB 00 07 C1 08 00 01 xx 04 yy CD CD
Set Screen Aspect Ratio	DD FF 00 07 C1 35 00 00 xx zz yy BB CC Once this command is set, reboot TV, it will show with expected ratio	ex: set screen ratio 90 degrees DDFF0007C1350000109FBBCC zz = 00 - 0 degree, 01 - 90 degree	AB AB 00 07 C1 35 00 00 xx zz yy CD CD
Set Mute	DD FF 00 07 C1 26 00 00 xx 01 yy BB CC	DDFF0007C12600000101E0BBCC	AB AB 00 07 C1 26 00 00 xx 01 yy CD CD
Set Unmute	DD FF 00 07 C1 26 00 00 xx 00 yy BB CC	DDFF0007C12600000100E1BBCC	AB AB 00 07 C1 26 00 00 xx 00 yy CD CD
Set Volume	DD FF 00 07 C1 27 00 00 xx zz yy BB CC	DDFF0007C12700000101E1BBCC zz: volume range 0-100	AB AB 00 07 C1 27 00 00 xx zz yy CD CD
Set Backlight Brightness	DD FF 00 08 C1 32 00 00 xx 06 zz yy BB CC	ex: set brightness to 32 - zz = 0x20 DDFF0008C1320000010620DCBBCC	AB AB 00 08 C1 32 00 00 xx 06 zz CD CD
Set Backlight Brightness Auto Adjust	DD FF 00 07 C1 34 00 00 xx zz yy BB CC	ex: set brightness auto adjust on DDFF0007C13400000100F3BBCC zz = 00 - on, 01 - off	AB AB 00 07 C1 34 00 00 xx zz yy CD CD
Set Date	DD FF 00 09 C1 1C 00 00 xx zz zz zz yy BB CC	ex: set date to 23.Jan.2 DDFF0009C11C000001170102C1BBCC zz zz zz = Year Month Day	AB AB 00 09 C1 1C 00 00 xx zz zz yy CD CD zz zz zz = FF FF FF when error
Set Time	DD FF 00 09 C1 1D 00 00 xx zz zz yy BB CC	ex: set time to 12:25:2 DDFF0009C11D0000010C1902C3BBCC zz zz zz = Hour Minute Second	AB AB 00 09 C1 1D 00 00 xx zz zz yy CD CD zz zz zz = FF FF FF when error
Set Schedule for Power On	DD FF 00 09 C1 3E 00 00 xx tt zz zz yy BB CC	ex: power on at 9:10 every day DDFF0009C13E00000101090AF5BBCC tt = 00 - turn off schedule, 01 - everyday zz zz = Hour Minute	AB AB 00 09 C1 3E 00 00 xx zz zz yy CD CD

Set Schedule for Power Off	DD FF 00 09 C1 3F 00 00 xx ff zz yy BB CC	ex: power off at 18:10 every day DDFF0009C13F00000101120AEFBCC ff = 0 - turn off schedule, 1 - everyday zz zz = Hour Minute	AB AB 00 09 C1 3F 00 00 xx zz zz yy CD CD												
Set Brightness	DD FF 00 07 C1 36 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set brightness to 32 - zz = 0x20 DDFF0007C13600000120D1BBCC	AB AB 00 07 C1 36 00 00 xx zz yy CD CD												
Set Contrast	DD FF 00 07 C1 37 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set contrast to 32 - zz = 0x20 DDFF0007C13700000120D0BBCC	AB AB 00 07 C1 37 00 00 xx zz yy CD CD												
Set Sharpness	DD FF 00 07 C1 38 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set sharpness to 32 - zz = 0x20 DDFF0007C13800000120DFBBCC	AB AB 00 07 C1 38 00 00 xx zz yy CD CD												
Set Color Temperature	DD FF 00 07 C1 39 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set colour temperature to 32 - zz = 0x20 DDFF0007C13900000120DEBBCC	AB AB 00 07 C1 39 00 00 xx zz yy CD CD												
Set Noise Reduction	DD FF 00 07 C1 3A 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set noise reduction to High - zz = 0x03 DDFF0007C13A00000103FEBBCC zz = 01 - low, 02 - medium, 03 - high, 04 - auto, 00 - off	AB AB 00 07 C1 3A 00 00 xx zz yy CD CD												
Set Image Scaling	DD FF 00 07 C1 3B 00 00 xx zz yy BB CC current source must be: DP, VGA, HDMI, PC, DVI	ex: set image scaling to Full - zz = 0x03 DDFF0007C13B00000103FFBBCC zz = 00 - full, 01 - 16:9, 02 - 4:3, 03 - scaling 1, 04 - scaling 2, 05 - point to point	AB AB 00 07 C1 3B 00 00 xx zz yy CD CD												
Set Picture Mode	DD FF 00 07 C1 0F 06 00 xx zz yy BB CC	ex: set picture mode to movie mode - zz = 0x03 DDFF0007C10F060001030CBBCC zz = 00 - standard, 01 - bright, 02 - soft, 03 - Movie, 04 - Text, 5 - gaming 12 - natural	AB AB 00 07 C1 0F 06 00 xx zz yy CD CD												
Set Sound Mode	DD FF 00 07 C1 FF 00 03 xx zz yy BB CC	ex: set sound mode to standard mode - zz = 0x00 DDFF0007C1FF000301003BBBCC zz = 00 - standard, 01 - music, 02 - news, 08 - movie, 10 - sports, 20 - custom, 30 - voice, 40 - meeting	AB AB 00 07 C1 FF 00 03 xx zz yy CD CD												
Set Eye Protection Mode	DD FF 00 07 C1 FF 00 1E xx zz yy BB CC	ex: set eye protection mode on - zz = 0x01 DDFF0007C1FF001E010127BBCC zz = 00 - off, 01 - on	AB AB 00 07 C1 FF 00 1E xx zz yy CD CD												
VGA Auto Adjust	DD FF 00 07 C1 01 00 00 xx yy BB CC current source must be VGA	ex: VGA Auto Adjust DDFF0007C101000001C6BBCC zz = 00 - off, 01 - on	AB AB 00 07 C1 01 00 00 xx yy CD CD												
Set anti-burn-in (image retention)	DD FF 00 07 C1 33 00 00 xx zz yy BB CC	ex: set anti-burn-in on DDFF0007C13300000101F4BBCC zz = 00 - off, 01 - on	AB AB 00 07 C1 33 00 00 xx zz yy CD CD												
Set Power on delay	DD FF 00 07 C1 3C 00 00 xx zz yy BB CC	ex: set power on delay to 10s DDFF0007C13C0000010AF1BBCC zz = 00 - off, others - delay time, range: 2s - 255s	AB AB 00 07 C1 3C 00 00 xx zz yy CD CD												
Set Video Wall	DD FF 00 09 C1 0A 00 00 xx zz zz yy BB CC	ex: vertical 3 devices, horizontal 4 devices, device position: 6 DDFF0009C10A000001030406C2BBCC zz: how many devices in vertical zz: how many devices in horizontal zz: current device position	AB AB 00 09 C1 0A 00 00 xx zz zz yy CD CD <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>10</td> <td>11</td> <td>12</td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12
1	2	3													
4	5	6													
7	8	9													
10	11	12													

Set Static IP Address of LAN	DD FF 00 16 C1 1B 30 00 xx zz ... zz yy BB CC	Ex: set IP 10.16.150.225, subnet mask: 255.255.248.0, gateway: 10.16.144.1, DNS: 10.16.144.2 DDFF0016C11B3000010A1096E1FFFFFF8000A1090010A10900249BBCC zz ... zz - 16 bytes, IP address - 4 bytes, Subnet mask - 4 bytes, gateway - 4 bytes, DNS - 4 bytes	DD FF 00 16 C1 1B 30 00 xx zz ... zz yy BB CC
Set USB Lock	DD FF 00 07 C1 FF 00 0E xx zz yy BB CC	ex: lock USB DDFF0007C1FF000E010036BBCC zz = 00 - lock USB, 01 - enable USB	AB AB 00 07 C1 FF 00 0E xx zz yy CD CD
Factory Reset	DD FF 00 06 C1 10 00 00 xx yy BB CC	DDFF0006C110000001D6BBCC	AB AB 00 06 C1 10 00 00 xx yy CD CD
Query TV Status	DD FF 00 06 C1 28 00 00 xx yy BB CC	DDFF0006C128000001EEBBCC	AB AB 00 0C 28 00 00 xx zz zz zz zz yy CD CD zz: volume zz zz: 05 01 - PC, 05 02 - DVI, 05 03 - DP, 05 04 - HDMI2, 05 05 - HDMI1, 08 01 - VGA zz: 00 - power on, FF - power off zz: 01 - mute; 00 - unmute zz: 00 - no signal, 01 - has signal
Query Screen Status	DD FF 00 06 C1 32 00 00 xx yy BB CC	DDFF0006C110000001D6BBCC	AB AB 00 07 C1 32 00 00 xx zz yy CD CD zz: 00 - screen off, 01 - screen on
Query Source	DD FF 00 06 C1 1A 00 00 xx yy BB CC	DDFF0006C11A000001DCBBCC	AB AB 00 09 C1 1A 00 00 xx zz zz zz yy CD CD zz zz zz - source, refer to user menu for source definition
Query SW Version	DD FF 00 06 C1 1B 00 00 xx yy BB CC	DDFF0006C11B000001DDBBCC	AB AB 00 09 C1 1B 00 00 xx zz zz zz yy CD CD zz zz zz - Year Month Date
Query Backlight Brightness	DD FF 00 06 C1 3E 00 00 xx yy BB CC	DDFF0006C13E000001F8BBCC	AB AB 00 LL C1 3E 00 00 xx zz zz yy CD CD zz: 01 - bright, 02 - soft, 03 - auto adjust, 04 - stereo frequency conversion, 05 - Comfort frequency conversion, 06 - custom zz: when first zz is 06 custom, this byte means backlight brightness value: 0-30 LL: when first zz is zz, LL = 08, otherwise, LL = 07
Query Brightness	DD FF 00 06 C1 36 00 01 xx yy BB CC	DDFF0006C136000101F0BBCC	AB AB 00 07 C1 36 00 01 xx zz yy CD CD zz is the brightness value
Query Network Status	DD FF 00 06 C1 FF 00 16 xx yy BB CC	DDFF0006C1FF0016012FBBCC	AB AB 00 07 C1 FF 00 16 xx zz yy CD CD zz: 00 - no network connection; 01 - network connected
Query Sound Mode	DD FF 00 06 C1 FF 00 02 xx yy BB CC	DDFF0006C1FF0002013BBBCC	AB AB 00 07 C1 FF 00 02 xx zz yy CD CD zz = 00 - standard, 01 - music, 02 - news, 08 - movie, 10 - sports, 20 - custom, 30 - voice, 40 - meeting
Query AC Power On Status	DD FF 00 06 C1 FF 00 08 xx yy BB CC	DDFF0006C1FF00080131BBCC	AB AB 00 07 C1 FF 00 08 xx zz yy CD CD zz: 00 - power on; 01 - Last mode; 02 - standby
Query IP Address	DD FF 00 06 C1 1B 20 00 xx yy BB CC	DDFF0006C11B200001FDBBCC	AB AB 00 16 C1 1B 20 00 xx zz ... zz yy CD CD zz zz zz zz - IP address zz zz zz zz - Subnet mask zz zz zz zz - Gateway zz zz zz zz - DNS
Query Device Temperature	DD FF 00 06 C1 FE 00 00 xx yy BB CC	DDFF0006C1FE00000138BBCC	AB AB 00 07 C1 FE 00 00 xx zz yy CD CD zz: temperature in centigrade

Query Eye Protection Mode	DD FF 00 06 C1 FF 00 1D xx yy BB CC	DDFF0006C1FF001D0124BBCC	AB AB 00 07 C1 FF 00 1D xx zz yy CD CD zz: 00 - Off; 01 - On
Query SN	DD FF 00 06 C1 FF 00 0B xx yy BB CC	DDFF0006C1FF000B0132BBCC	AB AB 00 1D C1 FF 00 0B xx zz...zz yy CD CD zz .. zz: 23 bytes
Query Device ID	DD FF 00 06 C1 FF 00 0D xx yy BB CC	DDFF0006C1FF000D0134BBCC	AB AB 00 26 C1 FF 00 0D xx zz...zz yy CD CD zz .. zz: 32 bytes
Query MAC Address	DD FF 00 06 C1 6C 00 00 xx yy BB CC	DDFF0006C16C000001AABBCC	AB AB 00 0E C1 6C 00 00 xx zz...zz yy CD CD zz .. zz: 8 bytes
Send Remote Controller Key Code	DD FF 00 08 C1 17 00 00 xx zz yy BB CC	ex: send menu key: zz zz = 00 00 DDFF0008C1170000010000DFBBCC zz zz = 00 00 - Menu; 00 01 - UP, 00 02 - DOWN, 00 03 - LEFT, 00 04 - RIGHT, 00 05 - OK, 00 06 - Return, 00 07 - Source	N/A
Open Setting Menu	DD FF 00 06 C1 41 00 00 xx yy BB CC	DDFF0006C14100000187BBCC	AB AB 00 06 C1 41 00 00 xx yy CD CD
Open Home	DD FF 00 06 C1 FF 00 1A xx yy BB CC	DDFF0006C1FF001A0123BBCC	AB AB 00 06 C1 FF 00 1A xx yy CD CD
Open CMS	DD FF 00 06 C1 FF 00 13 xx yy BB CC	DDFF0006C1FF0013012aBBCC	AB AB 00 06 C1 FF 00 13 xx yy CD CD
Open ScreenShare	DD FF 00 06 C1 43 00 00 xx yy BB CC	DDFF0006C14300000185BBCC	AB AB 00 06 C1 43 00 00 xx yy CD CD
Turn on Hotspot	DD FF 00 06 C1 44 00 00 xx yy BB CC	DDFF0006C14400000182BBCC	AB AB 00 06 C1 44 00 00 xx yy CD CD
Take Screenshot	DD FF 00 06 C1 4B 00 00 xx yy BB CC	DDFF0006C14B0000018DBBCC	AB AB 00 06 C1 4B 00 00 xx yy CD CD
Freeze Screen	DD FF 00 06 C1 0F 08 00 xx zz yy BB CC	DDFF0006C10F08000101E2BBCC zz = 01 - freeze; 00 - unfreeze	AB AB 00 06 C1 0F 08 00 xx zz yy CD CD

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