EXTERNAL RS232 CONTROL GUIDE

LED All-in-one

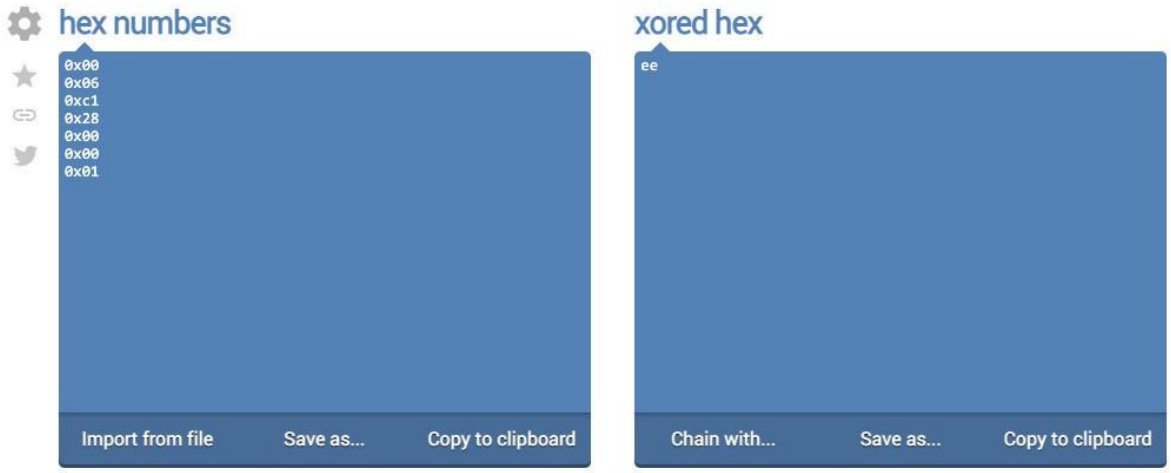
INTRODUCTION

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.

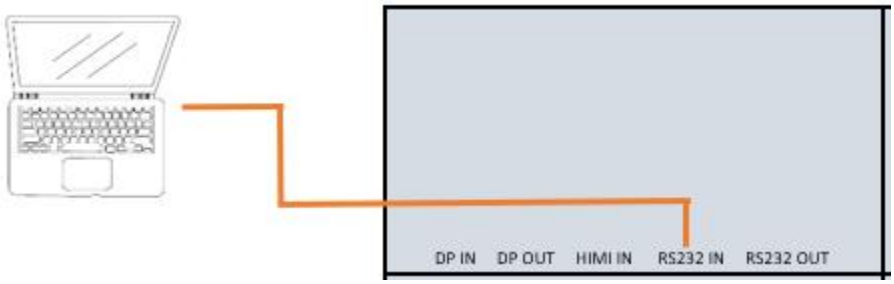
DE SERIES

Connectivity Diagram

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

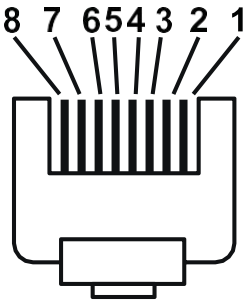
RS232 Connectivity Illustration

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.



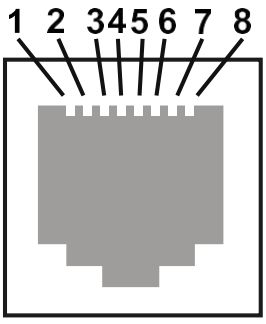
Pin Configuration

Rj-45 Jack (Male)



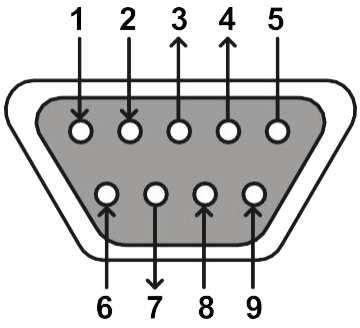
DB-9 Male

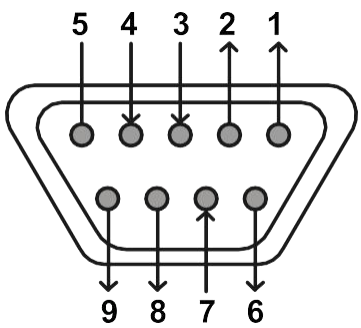
Rj-45 Jack (Female)



DB-9 Female

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





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

DM-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	DDFF0008C115000001BBBBDDBBCC	AB AB 00 08 C1 15 00 00 xx BB BB yy CD CD When TV is in standby sate, 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	DD FF 00 08 C1 15 00 00 01 AA AA DD BB CC	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	DD FF 00 07 C1 31 00 00 01 00 F6 BB CC	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	DD FF 00 07 C1 31 00 00 01 01 F7 BB CC	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	DD FF 00 06 C1 1E 00 00 01 D8 BB CC	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 zz: power on mode. 00 – direct, 01 – last, 02 – standby direct: DD FF 00 07 C1 FF 00 09 01 00 31 BB CC last: DD FF 00 07 C1 FF 00 09 01 01 30 BB CC standby: DD FF 00 07 C1 FF 00 09 01 02 33 BB CC	AB AB 00 07 C1 FF 00 09 xx zz 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
HDMI3 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
PC Input (OPS Input)	DD FF 00 07 C1 08 00 00 xx 0D yy BB CC	DDFF0007C1080000010DC2BBCC	AB AB 00 07 C1 08 00 00 xx 0D 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 LED Brightness	DD FF 00 08 C1 32 00 00 xx 06 zz yy BB CC	ex: set brightness to 5 - zz = 0x4 DDFF0008C1320000010620DCBBCC zz = 00-1,01-2, … 07-8	AB AB 00 08 C1 32 00 00 xx 06 zz CD CD
Set LED Brightness Auto Adjust	DD FF 00 07 C1 34 00 00 xx zz yy BB CC	ex: set brightness auto adust off DDFF0007C13400000100F3BBCC zz = 00 - off, 01 - on	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 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 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 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 Tips: If the device has been set to power on and off at a scheduled time, sending this command will clear the original settings, and leaving only the one sent.	AB AB 00 09 C1 3E 00 00 xx zz zz zz yy CD CD
Set Schedule for Power Off	DD FF 00 09 C1 3F 00 00 xx tt zz zz yy BB CC	ex: power off at 18:10 every day DDFF0009C13F00000101120AEFBBCC tt = 0 - turn off schedule, 1 - everyday zz zz = Hour Minute Tips: If the device has been set with a timed power on/off command, all previously set power on/off will be turned off	AB AB 00 09 C1 3F 00 00 xx zz 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 zz = 00-0,011,… 64-100	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 zz = 00-0,011,… 64-100	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 zz = 00 –0, 01-1, … 14 – 20	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 zz = 00 –2000K, 01 - 3000K, 02 - 4000K, 03 - 5000K, 04 - 6000K, 05 - 6500K, 06 - 7000K, 07 - 7500K, 08 - 8000K, 09 - 9000K, 0A - 9300K	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 Picture Mode	DD FF 00 07 C1 0F 06 00 xx zz yy BB CC	ex: set picture mode to movie mode - zz = 0x03 DDFF0007C10F06000103CDBBCC zz = 00 - Standard, 03 - Cinema, 08 – Meeting; 09 – Showroom; 10 – HDR Standard; 11 – HDR Showroom;	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 - sports, 02 - movie, 08 - music, 10 - custom	AB AB 00 07 C1 FF 00 03 xx zz yy CD CD
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 DDFF0016C11B3000010A1096E1FFFFF8000A1090010A1090026BBBCC zz .. zz - 16 bytes, IP address - 4 bytes, Subnet mask - 4 bytes, gateway - 4 bytes, DNS - 4 bytes	AB AB 00 16 C1 1B 30 00 xx zz … 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 C1 28 00 00 xx zz zz zz zz zz zz yy CD CD zz: volume zz zz: 05 01 – PC(OPS), 05 02 – HDMI1, 05 03 – HDMI2, 05 04 – HDMI3 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 01 xx yy BB CC	DD FF 00 06 C1 32 00 01 01 F5 BB CC	AB AB 00 07 C1 32 00 01 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 08 C1 1A 00 00 xx zz zz yy CD CD zz zz - source, refer to user menu for source definition zz zz: 05 04 - PC, 05 02 - HDMI1, 05 03 – HDMI2, 05 01 – HDMI3
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 Brightness	DD FF 00 06 C1 36 00 01 xx yy BB CC	DDFF0006C136000101F1BBCC	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 - sports, 02 - movie, 08 - music, 10 - custom
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 Picture Mode	DD FF 00 06 C1 6D 00 00 xx yy BB CC	DD FF 00 06 C1 6D 00 00 0A CE BB CC	AB AB 00 07 C1 6D 00 00 xx zz yy CD CD zz = 00 - Standard, 03 - Cinema, 08 – Meeting; 09 – Showroom; 10 – HDR Standard; 11 – HDR Showroom;
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 serial number

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 device ID
Query MAC Address	DD FF 00 06 C1 6C 00 00 xx yy BB CC	DDFF0006C16C000001AABBCC	AB AB 00 0C C1 6C 00 00 xx zz…zz yy CD CD zz .. zz: 6 bytes
Query volume	DD FF 00 06 C1 7D 00 00 xx yy BB CC	DD FF 00 06 C1 7D 00 00 01 BB BB CC	AB AB 00 07 C1 7D 00 00 xx zz yy CD CD zz: volume
Query Serial Port ID	DD FF 00 06 C1 1B 10 00 xx yy BB CC	DD FF 00 06 C1 1B 10 00 01 CD BB CC 1-32: 01-1, … 20-32	AB AB 00 06 C1 1B 10 00 xx zz yy CD CD zz: serial port ID. Settings -> signal manager -> serial port ID
Query brand	DD FF 00 06 C1 FE 00 01 xx yy BB CC	DD FF 00 06 C1 FE 00 01 01 39 BB CC	AB AB 00 06 C1 FE 00 01 xx zz…zz yy CD CD zz…zz: brand. ex: hisense (ASCII)
Query model	DD FF 00 06 C1 FE 00 02 xx yy BB CC	DD FF 00 06 C1 FE 00 02 01 3A BB CC	AB AB 00 06 C1 FE 00 02 xx zz…zz yy CD CD zz…zz: model name
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 - DOWN, 00 03 - LEFT, 00 04 - RIGHT， 00 05 - OK， 00 06 - Return, 00 07 - Source	AB AB 00 08 C1 17 00 00 xx zz zz yy CD CD
Open Settings	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 07 C1 0F 08 00 xx zz yy BB CC	DD FF 00 07 C1 0F 08 00 01 01 C1 BB CC zz = 01 - freeze; ~~00 – unfreeze~~	AB AB 00 07 C1 0F 08 00 xx zz yy CD CD

Hisense

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