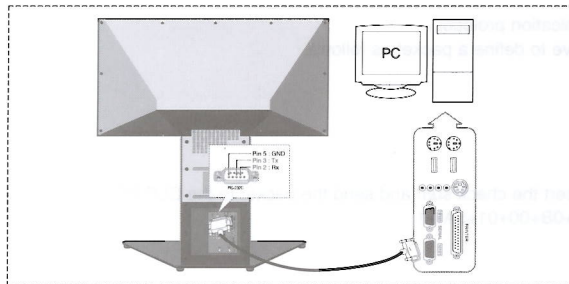


Procedures for Controlling a DLP DTV using an RS-232C Connection

Connect the DLP DTV using the serial port.



- ⓘ Do not disconnect or connect the RS-232C cable while the Computer or the DLP TV is operating. It may cause serious damage to the Computer or the DLP TV.
- ⓘ If the PC is not properly configured, the RS-232C connection may not work properly. For further details, refer to the Computer's product documentation.

Serial Port Settings (Select Standard RS232)

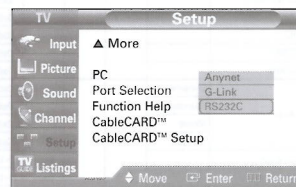
Specification	RS-232C
Bit Rate	19200 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow Control	None

DLP DTV Menu Configuration

Since Anynet, G-Link and RS232C share a serial port, you have to select RS232C from the menu for the following communication.

Menu Setting Procedures

Select **Setup** → **Port Selection** → **RS232C**



Serial Communication Protocol

Command Packet Structure [7bytes]

0x08	0x22	Cmd1	Cmd2	Cmd3	Value	CS
------	------	------	------	------	-------	----

- ◆ A command packet consists of 7 bytes in total.
- ◆ The two bytes **0x08** and **0x22** signify that the packet is for serial communication.
- ◆ The following 4 bytes represent a pre-defined command that can be defined by the user.
- ◆ The last byte is the checksum which checks the validity of the current packet.

Header [2 Byte]: Pre-defined values fixed to 0x08 and 0x22.

Cmd1 [1 Byte]: The first value of the code defined in the command list (Hexadecimal)

Cmd2 [1 Byte]: The second value of the code defined in the command list (Hexadecimal)

Cmd3 [1 Byte]: The third value of the code defined in the command list (Hexadecimal)

Value [1 Byte]: Input parameter for the command (Default: 0) (Hexadecimal)

CS [1 Byte]: Checksum (the 2's complement of the sum of all the values except for the CS value.)

Response Packet Structure [3bytes]

- ◆ Success
- ◆ Fail

0x03	0x0C	0xF1	0x03	0x0C	0xFF
------	------	------	------	------	------

When the received packet from an external device has a valid value, a Success packet is sent. Otherwise, a Fail packet is sent.

A Fail packet is sent if:

- ◆ The received packet length is not equal to 7 bytes.
- ◆ The 2 byte packet header value is not equal to 0x08, 0x22.
- ◆ The check sum is incorrect.

Failure detection by an external device

An external device classifies the packet as Fail if it does not receive a Success packet within 100ms.

Communication Sequence

- ◆ **PC**
Creates a command packet and sends it through RS232C.
- ◆ **DLP DTV**
Receives a packet and parses the packet.
Determines whether it is a success or fail, and transmits the Ack packet to the PC.
Controls the DLP DTV with the parsed command.
- ◆ **PC**
Waits for the Ack packet.
Prepares the next command, if a Success packet arrives immediately.

Procedures for Controlling a DLP DTV using an RS-232C Connection

Example

In this example, let's analyze the message of the communication protocol.
 To change the Contract of the screen mode to 90, you have to define a packet as follows.
 First, find the Contract command from the Command List.
 Find 0x0B for PICTURE.
 Find 0x00 for MODE.
 Find 0x01 for CONTRAST.
 Finally, insert the desired value 90 into the 4-byte data.
 Insert the header values 0x08 and 0x22, calculate and insert the check sum and send the packet to the DLP DTV.
 e.g.) PICTURE / MODE / CONTRAST (90) CS= ~(08+22+0B+00+01+5A)+1

0x08	0x22	0x0B	0x00	0x01	0x5A	0x70
------	------	------	------	------	------	------

If the DLP DTV receives, analyzes and parses the packet successfully, it transmits a Success packet to the PC.

0x03	0x0C	0xF1
------	------	------

CONTROL ITEM				Cmd1	Cmd2	Cmd3	Value																					
GENERAL	Power			0x00	0x00	0x00	0x00																					
	Volume			0x01	0x00	0x00	(0-100)																					
	Mute			0x02	0x00	0x00	0x00																					
INPUT	Source List	TV		0x0A	0x00	0x00	0x00																					
		AV1					0x01																					
		AV2					0x02																					
		S-Video1					0x03																					
		S-Video2					0x04																					
		Component1					0x05																					
		Component2					0x06																					
		PC					0x07																					
		HDMI1					0x08																					
		HDMI2					0x09																					
PICTURE	Mode	Dynamic		0x00	0x00	0x00	0x00																					
		Standard					0x01																					
		Movie					0x02																					
		Custom					0x03																					
		Contrast					0x01	(0-100)																				
		Brightness					0x02	(0-100)																				
		Sharpness					0x03	(0-100)																				
		Color					0x04	(0-100)																				
		Tint (G/R)					0x05	(0-100)																				
								0x00																				
	Cool2		0x01																									
	Cool1		0x02																									
	Normal		0x03																									
	Warm1		0x04																									
	Warm2		0x05																									
	Reset		0x07	0x00																								
	Size	16:9			0x01	0x00	0x00	0x01																				
		4:3		0x02																								
		Zoom1		0x03																								
		Zoom2		0x04																								
Panorama			0x04																									
Digital NH	Off			0x02	0x00	0x00	0x01																					
	On		0x01																									
DNie Demo	On			0x03	0x00	0x01	0x02																					
	Demo						0x01																					
My Color Control	Easy Control	Red		0x0B	0x04	0x00	0x00																					
		Green					0x01																					
		Blue					0x02																					
		Yellow					0x03																					
		Pink					0x04																					
							0x06																					
	Detail Control	Standard						0x01	(0-100)	0x01																		
		Custom									0x02	(0-100)	0x02															
		Red												0x03	(0-100)	0x03												
		Green															0x04	(0-100)	0x04									
		Blue																		0x05	(0-100)	0x05						
		Yellow																					0x06	(0-100)	0x06			
		Pink																								0x07	(0-100)	0x07
		Reset																										
Film Mode	Off			0x05	0x00	0x00	0x01																					
	On		0x01																									
PIP	Off			0x00	0x00	0x00	0x00																					
	On		0x00																									

CONTROL ITEM				Cmd1	Cmd2	Cmd3	Value				
SOUND	PIP	Source	TV	0x06	0x02	0x00	0x00				
			AV1				0x01				
			AV2				0x02				
			S-Video1				0x03				
			S-Video2				0x04				
			Component1				0x05				
		Component2	0x06								
		Swap					0x02	0x00			
		Size	Small					0x03	0x01	0x00	0x00
			Large								0x01
	Double			0x02							
	Double Wide			0x03							
	Position	Lower Right		0x04	0x01	0x00	0x00				
		Upper Right					0x01				
		Upper Left					0x02				
		Lower Left					0x03				
	Air/CATV	Air		0x05	0x00	0x00	0x00				
		Cable					0x01				
	Mode	Standard		0x00	0x00	0x00	0x00				
		Music					0x01				
Movie			0x02								
Speech			0x03								
Custom			0x04								
Equalizer		L/R					0x01	0x01	0x00	0x01 (0-20)	
		100Hz								0x02 (0-20)	
		300Hz								0x03 (0-20)	
		1kHz								0x04 (0-20)	
		3kHz								0x05 (0-20)	
	10kHz		0x06 (0-20)								
SRS TSXT	Off		0x02	0x00	0x00	0x00					
	3D Mono					0x01					
	Stereo					0x02					
Multi-Track Options	Preferred Language	English	0x0C	0x03	0x00	0x00					
		Spanish				0x01					
	French					0x02					
	Mono					0x00					
Multi-Track Sound	Stereo		0x01	0x01	0x00	0x01					
	SAP					0x02					
Auto Volume	Off		0x04	0x00	0x00	0x00					
	On					0x01					
Internal Mute	Off		0x05	0x00	0x00	0x00					
	On					0x01					
Digital Output	Dolby Digital		0x06	0x00	0x00	0x00					
	PCM					0x01					
Sound Select	Main		0x07	0x00	0x00	0x00					
	Sub					0x01					
Sub-Woofler	SubWoofer	Off	0x08	0x00	0x00	0x00					
		On				0x01					
	Volume					0x01 (0-100)					
Melody	Frequency		0x09	0x00	0x00	0x02 (50-200)					
	Off					0x00					
	On					0x00					